METHODS OF TEACHING

By JOHN WILSON, M.A.

A Practical Guide to the Schoolroom

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Manual of

Methods of Teaching

A Practical Guide to the Schoolroom

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BY

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PREFACE.

IN this work, which the author ventures to offer the teaching profession, it is assumed that children are possessed of intellects, memories, and a variety of faculties, all of which are capable of development; and that there are teachers of every grade of ability. For the expert, whose success in teaching is mainly the outcome of innate aptitude and consequent love of the art, this work is not specially intended, although from a perusal of it he may derive such benefits as are likely to accrue from the comparison of methods. While fully aware that it is difficult to formulate a series of rules for guidance in teaching without interfering with the privileges and discretion of the teacher, the author hopes that, in thus elaborating and promulgating a body of school methods, he does not appear in any way to hamper or subvert what in actual practice has already proved thoroughly sound and successful. As expounding methods, perhaps very far from the best, yet, it is hoped, worth trying, the book is particularly recommended to those entering the profession, to unsuccessful teachers, and to those whose efforts are industrious but unfruitful. It is hoped that even the down-hearted teacher, whose motto may have become *laissez faire*, may, under the guidance and stimulus of these pages, change his attitude and bestir himself to verve and profitable activity. Good methods should tend to encourage application in the teacher, and foster a desire to learn in the taught. It has been the author's endeavour to inculcate methods thoroughly practical and specially adapted to the juvenile intellect, which must not be driven or pressed beyond its natural capacity, and in opposition to the will. Pressure is injurious, and utterly antithetical to educational principles. Roger Ascham in "*The Scholemaster*" shows himself in full sympathy with the Socratic apothegm, which he thus translates:—"*No learning ought to be learned with bondage: For, bodelie labors, wrought by compulsion, hurt not the bodie: but any learning learned by compulsion, tarieth not long in the mynde.*"

Just as there are intelligible ways of putting matter before the mind, so there are points connected with every subject upon the mastery of which knowledge of it depends. The author has endeavoured to show throughout the work that success in teaching largely results from the teacher's comprehension of these "sticking-points," and his ability to cope with them so as to remove all obstacles promptly and effectively. The long-standing and ubiquitous nature of the branches forming the groundwork of primary education makes it impossible on all occasions to hit upon methods entirely novel, but it is believed that many of those herein advocated are new to the teaching profession. The subjects treated *in extenso* are those characteristic of the elementary school curriculum. The theoretical side has been referred to only in so far as it has been found necessary to emphasize and explain the practical. The fact that the work is adapted for reference at any time and at any point has necessitated occasional repetitions and redundancies, for which the author begs to apologize. Further, in order that the context may be understood as fast as read, the language has been studiously made as plain and readable as possible.

The diction employed where the pupils are addressed will be found to be specially simple and even commonplace. By its lucidity, intellectual progress is insured, and that discomfiture and *ennui* obviated which are apt to result from the use of an unintelligible vocabulary. When learning, the child's mind should not be exercised about the words, but about the idea embodied in them.

In conclusion, although the methods set forth in these pages may not for various reasons always reach the ideal involved in the highest educational principles, the author may be allowed with becoming modesty to express the hope that they contain at least such a modicum of common sense as will render their application in the schoolroom at once pleasant and profitable.

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VERNACULAR NORMAL SCHOOL CALCUTTA

METHODS OF TEACHING.

CHAPTER I.

READING.

THE FIRST STAGE OF READING.

READING is at first little more than mere word-naming, and so the effect is mechanical and monotonous. This branch of study resolves itself into distinct stages, and hence it will be well to view it in this light. In the first stage the child has to be taught to interpret the arrangement of vowel and consonant sounds of which the word is composed. From observation and enunciation of these component parts he is enabled, with the assistance of a teacher, to pronounce the whole word distinctly and correctly. The nature of the narrative, as well as the attractiveness of the exercise, should be sufficient stimulus to the child. But the guidance of a teacher is of the utmost importance. Without it, recognition of the words and distinctness of utterance—the two main things to be aimed at at this stage—are all but impossible. From the very first *imitation* plays a most important part in teaching reading. Imitation implies a teacher. As it is, as a rule, through observation of the constituent letters of the word that the child is enabled to sound it correctly, it will not be difficult, if the teacher desires it, to introduce him to the spelling of words at the same time.

Teacher necessary.

The arrangement of the pupils for reading will depend very much upon the size of the class. Where the numbers are large, it will be convenient to let them stand in lines so far apart that you can easily walk behind each row while teaching. If the class be small, the crescent form might be adopted. Each child should be provided with a book, which should be held in the left hand, the thumb of which should lie upon the protected core of the opened book. The manual itself should be held so that its lower edge may appear a trifle below the level of the chin, and about a foot in front of it. At first the slate-pencil, carefully pointed, may be used by the right hand as a sort of guide to the eye of the reader. After a time its aid will be unnecessary.

Arrangement of the Class.

Holding the Book.

The class arrangements being completed, and silence secured, proceed with the lesson, keeping always in view these three points:—(1) Every child must look steadily at the word; (2) the word must be sounded exactly as the teacher does it; (3) all the pupils must say it at the same time. If reading is to be taught through spelling of the words, spell each word slowly, then pronounce it distinctly, so that every child can hear you. The class will then spell and pronounce the word simultaneously after your model. Upon no account perform the steps *with* the class, but always *before* them. You act as *guide* and *corrector;* they are *guided* and *corrected.* The whole lesson, which at this stage is necessarily short, should be gone over after this manner three or four times. You may then read a sentence or passage, not omitting to make some attempt at word-grouping, which even at this time it is not impossible to teach. But your chief aim is to get the pupils to pronounce the words distinctly and correctly. After the children repeat groups of words simultaneously after you, you may ask them to read individually. Not only should the words be uttered firmly and correctly, but they should also be sounded audibly and in a natural tone. It is at this point that "bawling" is apt to begin. What can be more disagreeable and unnatural than to

Rules for Guidance.

Read in natural Voice.

hear the child shouting the words at the highest pitch of his voice, as if the listener were at a distance and partially deaf? Reading a trifle louder than in the natural voice may not be discouraged, especially if it tends to counteract a sense of timidity; but shouting should not be accepted as a quality of good reading. A well-trained child will adapt his voice to his distance from the listener, who should have no difficulty in following him.

Pupils possess the Vocabulary.

With most of the words which a young child reads he is practically familiar. It is thus the detection of the word in print with which he is principally concerned. But new words will occur, and both the interpretation and pronunciation of these demand consideration. Words of encouragement will be necessary at all times, and the child should be allowed an opportunity of correcting his effort before you ask his class-fellows to do it for him. Most children are very sensitive on this point. Before concluding, rehearse such words as have presented most difficulty during the progress of the lesson.

The Position of the Teacher.

During the reading lesson it will be well if the teacher is oftener behind the pupils than before them. The reason for this position is obvious. It is not so important that they should observe the lips and teeth when monosyllables are sounded as when the polysyllabic and peculiar words of the more advanced reading books are pronounced. Young children have a tendency to look off their books to scan the teacher's face in general rather than his mouth in particular, and are always keen to evince a deep interest in current incidents—such as obtain in an ordinary schoolroom. Expert thought-readers they are, nor have they much difficulty in interpreting pretty accurately at a glance the mind of the teacher. Full attention must be devoted to the words, and the habit of vaguely contemplating the teacher's face and bearing thoroughly overcome. There is a vast difference between the intermittent, time-wasting glance of the indifferent, thoughtless child and the earnest, imbibing gaze of the anxious learner. But the above position has another advantage. It enables the teacher to superintend more directly the pointing of the pupil, and brings his ear nearer the word sounds. In a well-taught class the proximity of the teacher to the reader should not occasion timidity but confidence. As a rule, children should have as little as possible put before them to distract attention during the reading lesson, and the teacher should invariably study to occupy a position which will prove as beneficial as possible to the progress of the class.

Meanings.

Intelligent answering of simple questions on the story of the lesson, or suggested by it, will, if interesting, and to a certain extent occasionally amusing, create interest in reading, lighten the tedium of it, and soften in a measure that restraint which, although irksome, is nevertheless necessary.

The oral spelling of a few words at the close (these may have been prepared as a home task), with a smile and a word or two of encouragement, will form an agreeable conclusion to the reading lesson, preparatory to seating the class for the subsequent writing one.

THE SECOND STAGE OF READING.

Preliminary Considerations.

As the reading progresses, and the number of characteristics of good reading increases, the attention of the pupils and the assiduity of the teacher will be more and more demanded. Whatever the pupils have been taught in one class they must practise in the next, in addition to acquiring something new. In the first stage mere mechanical word or syllable sounding was the main desideratum; nor was word-grouping of the most rudimentary kind altogether neglected. In the second stage the reading should begin to assume something of its real shape, and to show in embryo most of the characteristics which, in course of time, with patience and practice, will develop into good reading properly so called. The arrangements hitherto advocated are still to be observed, but pointing with the slate-pencil should ere this have been discontinued.

In the first instance, traverse the whole of the prescribed portion, calling attention to new words, and to all new or peculiar meanings of words with whose forms the pupils may be already familiar. Before explaining words you might write a list of them on the board, and call particular attention to those in which the pronunciation does not correspond with the spelling. After this, let the pupils imitate simultaneously, over and over again, your pronunciation of each word. Purity and marked distinctness of utterance should characterize your model. At this and all subsequent stages too much stress cannot be laid upon the distinct articulation of vowels, and especially of consonants, which are very apt to be slurred or even overlooked altogether. Write the particular word on the board, and, in addition to pronouncing it properly and emphatically yourself, call attention to such letters in it as you wish to be sounded clearly and firmly.

First Step.

Vowels and Consonants.

"And" is a source of constant trouble. Insist upon the final *d* receiving its full sound. Never allow "morning" to be pronounced as "mornin'," "coming" as "comin'," "bad" as "bat," "off" as "of," etc. The more careful you are about what may be viewed as trifles, and consequently overlooked at this early stage, the less trouble you will experience later, and the effect will be very manifest ever after. Your subsequent labours will diminish in proportion to your industry and efforts at this time. It will now be necessary to call the pupils' attention to what are called *grammatical pauses*. Explain that to them these little marks (give them the names of them) indicate pauses or resting-places, and to prove this read aloud a few sentences with due observance of the points.

"And."

Words carelessly pronounced.

Grammatical Pauses.

After explaining individual words, while the pupils give you their closest attention, you may proceed to give an intelligible explanation of the lesson. If it be a story, tell it in your own words, and in this way endeavour to excite and sustain interest in the narrative, and stimulate a desire to read because the information proves interesting. That done, while all eyes are intent upon the words, read the lesson plainly, deliberately, and in an as-it-ought-to-be-read sort

Explain the Lesson.

of way, endeavouring as much as possible to assimilate your reading to the accent you employed when telling the story in your own words. But this requires some skill, and too much must not be attempted just yet.

Simultaneous Reading.

After reading the whole lesson, bid the pupils read it simultaneously after you in phrases or groups of such words as will to the ear prove agreeable and natural. In the sentence, "We saw the old horse in the field," you first say, "*We saw*," and the pupils say the same simultaneously. Then you deal with "*the old horse*" and "*in the field*" as the proper groups. Give them to understand that they must imitate or mimic your reading of the phrase to the letter. It is thus very important that your example should be a paragon of excellence. The class will now listen while you read a sentence or passage, each word being carefully and distinctly uttered, and every group being well defined and deliberate. The effort should be the antithesis of a *wordy*, *drawling*, or *sing-song* style of reading. After you read the sentence, individual pupils taken in succession should read it as you did. At first every sentence should be read by you before a child attempts it. To give the pupils confidence in themselves, as well as encouragement, allow them towards the close of the lesson to read sentences individually without any preliminary model from you. This exercise will be all the more profitable if they are permitted to criticise—not interrupt—one another's reading. They are keen and anxious to criticise, and almost invariably take it amiss to be criticised. Criticism, when kept within due bounds, is healthy and beneficial in the schoolroom. Such an exercise can thus be made a very valuable stimulus; and if it does not effect good reading, it at least tends to encourage increased effort in that direction. The worst readers should read oftenest, and they should be made to feel that this extraordinary attention is in proportion to their defects. In this as in every other class, let the best reader frequently show the others a specimen of good reading. The encouragement is obvious.

Pupils read for themselves.

Let the Pupils criticise.

Shun corporal Punishment.

Except in the case of deliberate slovenliness and inattention, corporal punishment should never be resorted to while teaching reading, which, like most other branches, is an exercise demanding a rigid and concentrated application of the mind. Hence anything tending to distract it is strictly to be eschewed. How ridiculous it is to expect a "blubbering" child to articulate words correctly, much more so to read them.

Some Expression attempted.

But although your chief aim at this stage is to increase your pupils' vocabulary and to familiarize them with the printed forms, and correct pronunciation of common words, with which in their printed form they may or may not be familiar, the skilled teacher will not rest contented with this much. He feels that in addition to word-grouping, reading with a certain amount of expression may not unreasonably be expected. Still it must ever be borne in mind that the chief desideratum at this time is familiarity with words, without which good word-grouping, distinct pronunciation, and intelligent reading cannot exist. The words must first be known, the rest may follow.

The Story Lesson the most interesting.

You will find the story lesson by far the most interesting to children, and their inclination and aptitude to read the poems interspersed throughout the book should not be lost sight of. The short lines, convenient pauses, and agreeable rhythm, rhyme, and sentiment make a poetry lesson very attractive to young children. Encourage them to read anything, be it prose or poetry, so long as it increases their vocabulary, enlightens and gratifies the mind, and renders them familiar with word forms.

Pupils in Sympathy with the Teacher will imitate him.

If you possess the happy "knack" of making your pupils imitate exactly what you read, fair expression may obtain. Provided they are in full sympathy with you, they will certainly endeavour to imitate your example in reading as in everything else. To allow pupils to read sentence after sentence, and page after page, without any previous instruction or example, while the teacher rests contented with occasionally correcting, in an interrupting sort of fashion, a mispronounced word, is anything but teaching, and certainly as disgusting a performance as could well be imagined. Ever bear in mind that your function is *to teach reading, not to listen to bad reading.*

THE THIRD STAGE OF READING.

What has been said of the methodical teaching of reading of the second stage must certainly not be lost sight of when a higher class is reached. Correct pronunciation, firm articulation (not half-hearted articulation through semi-closed teeth and lips), more comprehensive word-grouping, and a creditable degree of fluency or rapid recognition of words, are all more than ever desirable. But in addition to these important qualities a growing amount of expression and correct intonation should begin to be observable. Imitation is still the secret of success. If you set your pupils no model to imitate, persevere as they may, fluency will be almost the only passable feature of their reading.

Reading Books.

With the pupils' advancement, the nature of the reading books demands increased consideration. What you intend to teach and to lay stress upon will of course largely determine the nature of your choice. While most books are beneficial, particular ones are meant to serve a specific purpose. The book through which ability to read is acquired supplies a digestible amount of intellectual food at the same time. A good style of reading cannot be acquired through any book, and it frequently happens that what is called a reading book is more a condensation of facts than a treatise bristling with elocutionary effects. A teacher should know the circumstances and abilities of his pupils, and be able to judge of the books likely to be beneficial to them. That book will be found most suitable which, while it is conducive to steady general intellectual progress, fosters at the same time a satisfactory style of reading by its being couched in terms studied to afford ample scope for good and encouraging elocutionary effort. A proper reading book is thus of the first importance in every class. Expediency as well as utility has to be considered. A book may be such that it affords the very minimum of scope for expressive reading. The style and vocabulary may encourage monotony, and the identity of spoken and written language may be with difficulty sustained by even the most intelligent pupil. Elocution is thus hampered, and the scholar as well as the teacher becomes painfully conscious of it. Take care, then, that your pupils are provided with specially arranged ordinary readers suited to their status and capacity. The whole vocabulary and tone will be of a more advanced nature than any of the preceding ones, and the quality of the contents will be such as will tend to give substantial increment to the intellectual growth of the child. The sentences will be longer, and the words both new and of increasing difficulty.

Special Attention given to Word-grouping.

Expressive reading should grow *pari passu* with the mind. You will now devote special attention to proper word-grouping and distinct enunciation as being the primary essentials of good reading at this point. In the sentence, "The boy reads the good book," the pupil at the second stage says the words a trifle more fluently than one at the first. The latter makes a decided pause after naming each word firmly and distinctly, as if it stood all important by itself, and you were satisfied when he could do so.

Word-grouping illustrated.

In the second stage the grouping showed slight pauses, which may be conveniently called half pauses, between "the" and "boy," "the" and "good," and "good" and "book," while whole pauses occurred between "boy" and "reads," and "reads" and "the." An ocular demonstration might be employed to explain the precise nature of word-grouping. Write on the board the sentence, "The little birds are singing sweetly in the leafy trees," placing the words in the usual way. Under this rewrite the sentence as follows: "The—little—birds—are—singing—sweetly—in—the—leafy—trees," the words being at equal distances apart, and lines drawn between them. Point out that the younger children pronounce each word as it stands in the latter rendering of the sentence, the style adopted being much the same as when they count one, two, three, four, etc. Read the sentence to show the class how rudimentary and wordy it is. Then say: "Now I am to show you how the sentence ought to be read. Were I speaking, I should take the words in this way, '*The little birds—are singing sweetly—in the leafy trees.*' You see I have said the sentence, taking the words in bunches, or groups, as they are called. This is really what we do when speaking, so that the sentence should properly appear like this: 'The little birds—are singing sweetly—in the leafy trees.'" Write the sentence again in this form, in order to make the grouping clear, and show that while it is natural, its growth is gradual. Run a pointer along the groups after you have written them, that the eyes may follow the arrangement, and the ear and intellect assimilate the naturalness of its rhythm. After such a demonstration the pupils should be asked, if the class is not too large, to repeat the sentence in its groups of words simultaneously, to encourage them to exert themselves when dealing with fresh matter. The pupil should now clearly understand what he is expected to do when you ask him to *group his words.* A similar method of teaching might even simplify such a task to the pupils of the last stage.

Then when the reading lesson proper is being taught, write a well-selected sentence on the board, arranging the words in proper groups, and marking the pauses by lines proportionate to their respective lengths. That done, while the pupils fix their eyes on the board, run the pointer along the words and enunciate them distinctly as you proceed. Repeat this not once, but again and again. Then ask them to read the sentence simultaneously, both along with and after you;- and finally select pupils here and there to read it individually. Then turning to their books they should apply this preliminary instruction to the sentences of the lesson. At the commencement go over the pronunciation of all new and difficult words, and as before explain the whole lesson bit by bit, so that the class may be enabled to grasp fully the sentiment to be conveyed through the reading. Follow up your explanation by showing, as above, how the sentences

The Lesson proceeded with.

are to be read so as best to bring out the correct meaning. When you give a specimen of good reading, be very careful about your pauses.

Pauses most important.

There is no fixed rule for such, but it may safely be said that rhetorical pauses, as distinguished from the decided grammatical ones, should come after the subject in a sentence, before a preposition, and nearly always before "and."

Reading at first will err on the side of Slowness.

Reading up to this point has been in the main slow, perhaps rather slow; not at all a bad feature, provided deliberateness, careful grouping of words, pauses, and all the primary qualities of good reading have been attended to. That fluency or degree of fluency which is characteristic of a colloquial style should now be systematically cultivated. The child will begin to show that he really appreciates and grasps the narrative in all its bearings, and that he is fully convinced that he is reading what he understands. The import and sentiment of the passage he will attempt in some degree to express and reflect. In other words, he will gradually come to combine with fluency a fair amount of expression.

What the Teacher must observe in his own Reading.

When you read the sentence, your effort should invariably illustrate all the qualities of good reading—namely, *proper pace and accent, correct quantity and expression, and clear enunciation.* The better the narrative is understood, the more accurate and decided will be the accent and stress laid upon words and phrases. Then when the pupils reach the more advanced classes, they will come to feel that upon careful inflection of the voice depend in an especial degree the meaning and feeling to be conveyed to the listener. After a few well-selected sentences have been explained on the board, proceed to read the lesson sentence by sentence, the pupils reading after you and like you, both simultaneously and individually.

The colloquial Lesson a valuable one.

The conversational form of lesson will occur in the books of nearly all the classes, and as there is no exercise more valuable as a means of teaching good reading, because it affords so much scope for accentuation, proper pace, and correct expression, when it occurs it should never be passed over till it is thoroughly mastered and made the most of.

The Pace and Tone.

The pace at which a sentence or paragraph should be read will depend very much upon the subject-matter as well as the spirit in which it is to be expressed. In reading the sentence before the pupil, endeavour to impress upon him the fact that the *story is to be read in precisely the same tone and style as the story spoken or told.* Reading in a monotone makes its appearance in a very marked degree at this time.

Monotonous Reading.

Monotonous or sing-song reading is often difficult to eradicate. To overcome it this plan might be tried: Mimic the monotonous reading of the worst, and on finishing your imitation of his drawling tone, in the same breath—that is, without stopping—prolong the tone in the form of a "doh" pitched in precisely the same key. Then, while a smile is provoked and the effect is felt by the class to be ridiculous, explain that you do not wish the lesson to be *sung* like "doh," as the pupil has done it; that, on the other hand, you wish it *read* as if it were *told*—that, in short, you wish it *spoken*. To put the idea of a *spoken* lesson forcibly, let every child steadily observe this sentence occurring in the lesson: "I cried very bitterly, and the next moment Ethel took me up in her arms, wiped my streaming eyes, and said, 'I am sure you are very sorry.'" All eyes being fixed on the sentence, in a quiet and natural tone of voice say: "'*I cried very bitterly*'—(When we came into the schoolroom this morning it felt very cold, and I said to the girl, Have you put on all the coals?)—'*and the next moment Ethel took me up in her arms, wiped my streaming eyes, and said, "I am sure you are very sorry"*'—(The girl said she had put on all the coals she could find; so I laughed, and said I was only joking)." To interlard the sentence with a few such commonplace remarks in simple language, *yet spoken in precisely the same style and with the same natural accent* as the words of the sentence, the whole being couched in an easy, flowing, continuous, natural strain, so that it will be difficult to detect, except from observation of the text, where the one ends and the other begins, will forcibly and in all probability successfully impress upon the monotonous readers the identity

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of phrases read with ones spoken. To say the least of it, the experiment is worth the time it will cost. If one in the class reads well, others will soon follow. So much for monotonous reading, which, although it does not originate at this point, should now have some corrective effort bestowed on it.

On low Reading.

At this stage pupils will be found very apt to read in a tone of voice too low to be audible, just as those in lower classes had a tendency to pitch their voices too high to be agreeable. It cannot be denied that reading under the natural key is very difficult to remedy. It is the result of indifference, uncertainty, shyness, bad example, or, worst of all, fear—fear of punishment on account of mistakes, or dread of the derision and mockery of class-fellows. To cure it the utmost tact and consideration will be required. In fact, you must experiment if you would be successful, for different cases require different treatment. As a rule don't speak harshly to the child, but rather use gentle encouragement. When you refer to the grievance, point out in a quiet way wherein the error lies by reading the sentence yourself, first as the child reads it, then as it should be read, so that the flatness or excessive pitch, as the case may be, may be apparent, and the natural, everyday tone appeal to him as the agreeable and correct one. When you ask a child reading in an inaudible tone to "speak up," you simply encourage him to put more energy into the same key or tone in which he is reading. It is precisely like loud singing and soft warbling in the same key. Don't get angry because he does not obey you; his increased effort even in the same key is of itself sufficient proof that he is willing to comply with your injunction. His failure to reach a higher pitch reflects upon your teaching. *You have to train him to read in a natural key.*

Simultaneous Reading raises the Pitch.

It is remarkable that when children read simultaneously the pitch is invariably correct. If ever it is at fault, it is too high. From this fact you must see that it is logical to infer that the prevailing sense of pitch, tone, and harmony in sounds affects the ears of the pupils in most cases. The prevailing tendency being to high-

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pitched simultaneous reading, those inclined to read low individually, from the fact that they have "ears" for music, cannot rest satisfied till they reach the level of those reading in the higher key. But this only holds good so long as they are reading in company with others. Whenever they are asked to read individually, down goes the pitch. If a pupil has a good musical ear and a marked absence of shyness, his pitch will be improved by simultaneous reading; and once he starts in the more elevated key, he will probably sustain it to the end of the sentence. But it is too often the case that simultaneous reading, while improving the pace, tends to lower the pitch of the voice when the pupils attempt to read individually. When a child is asked to read, the solitariness of his voice is apt to shake his confidence in himself and to fill him with fear or shyness, and as a consequence there is a decided lowering of the pitch. If you fail by simultaneous reading and your own comparative example to raise the pitch to a natural level, you may, as a *dernier ressort*, have recourse to the modulator. Bid the pupils sing with you the scale on the key C; next get them to do it individually; then ask them to sound a particular note, and show them how *to read on that tone as the starting one or the key*. There is no question that this is a very forcible way of giving them a grasp of what you are aiming at, and indicating both the cause and the remedy of the defect. Such an exercise, if handled calmly and slowly, will prove very interesting. In short, then, by the aid of the modulator you will have made it plain that when you ask the reader to "speak up," you simply invite him to adopt a higher note or pitch, as it is called, and not to put forth a more vigorous effort in the same erroneous one.

The Modulator may be used as a "dernier ressort."

Through this medium reading in too high a pitch may be corrected. Most will agree that the cure in this instance is much simpler than in the former. When the child starts off in a loud key, if you simply interrupt him and say, "*That is far too loud. You don't speak in that way. Come down*," you will in almost every case find

Treatment of loud Reading.

him immediately lower the pitch, if not to the correct one, at least to a more natural one. It is certainly the case that the nearer the child stands to you, either in reading or speaking, his tendency—a perfectly natural one—is to lower his voice. Since, therefore, the pitch is regulated by the distance between the reader and the hearer, with a view to elevate it, if it be too low, take care that your distance from the speaker is sufficient to encourage both reading and answering of questions in a natural yet perfectly audible tone of voice. Gentle treatment and patient experimenting may, and in most cases will, remedy the weakness; but the daily punishment, the offensive, "Speak up, sir!" and the constant menace, will only tend to make bad still worse. By such drastic means the disposition will be soured, and the desired end will never be attained. Bear in mind that the pupil is probably as conscious of his weakness as you are, and is willing, no doubt, to remedy it, but to him "Speak up," if not altogether meaningless, denotes that he put forth more energy in his utterance, which he does; but the key is at fault. It is your province, first to detect the error, then to train him to correct it with as little bustle and disturbance of his mental equilibrium as possible.

Punishment quite useless.

Thus far you should have taught your pupils to read in a natural and audible tone, with a fair measure of fluency, and with particular attention to punctuation both rhetorical and grammatical. If these things have been attended to, a solid foundation will have been laid on which to commence the more advanced reading required of the next class.

The Work reviewed.

THE FOURTH STAGE OF READING.

After what has been already said, it may appear that little more instruction is necessary in this all-important branch of education. To be sure, everything that has hitherto been dwelt upon is still of vital moment if a good style is to be cultivated; but more is necessary. From the lowest class to the highest reading should be progressive. It should appear as a series of well-defined, readily-distin-

Reading is progressive.

guished steps; and although it may not attain perfection even in the highest, the listener should be able to note a distinct improvement upwards. Each class should show some feature more fully developed than in the next lower one. There is practically no limit to the degree of proficiency that can be secured in reading. Just as the work of one class glides gradually into that of another higher one, to which it is as it were introductory and in a sense subsidiary, so the reading of one class should now form the basis of the more finished style which obtains in the more advanced one. The books are becoming gradually more difficult both in point of vocabulary and modes of expression; and *expressiveness*—that crowning piece of all the characteristics of good reading—is becoming more desirable, more complicated, and more difficult to effect. Hitherto the effort in this direction has been rudimentary and simple, because the books employed did not particularly encourage it. Acquaintance with a common vocabulary of printed forms, rapidity in recognizing words, and a fluent and distinct style of utterance have received most attention as yet, although such expression as was possible and encouraging has not been altogether overlooked. The lessons have been more conversational and descriptive than pregnant with sentimental quotations and ideas difficult to apprehend and express. The gradual introduction of matter demanding a special display of tasteful, intelligent modulation is now to be noted. These things being weighed, a few points for guidance in teaching at this important stage may be considered.

The Teacher should prepare the Lesson beforehand.

Although you may have devoted some private attention to the reading lessons of the classes junior to this, at no stage than at this is it more desirable that private preparation should be attended to. To some such a thing may appear unnecessary and even absurd, but a little reflection upon the importance of the subject will probably be convincing that it is most essential. Those who are conscious of the difficulties to be surmounted in dealing with this branch—and they are the best teachers—invariably give the matter some consideration beforehand. You will therefore do well to study the prescribed portion in private before facing the class. Note the words that are both new and difficult to understand, observe peculiarities of spelling and meaning, and finally make up your mind upon the points demanding most attention and as to the best methods of making your ideas explicit to the juvenile mind. Then when you take the class in hand, go over the lesson in the first instance *for its information*, then *for the reading*. This may appear paradoxical, for one is accustomed to read for information. But you must keep in mind that at present you are training the pupils to read properly, as a specific discipline to which an antecedent knowledge of the matter is eminently conducive. Then when the faculty of reading intelligently has been acquired the order will be reversed, and the pupil will proceed to read for information and enlightenment.

The Lesson reviewed for its Information.

But to return to the lesson, read it yourself in your best style sentence by sentence, and at the end of each expound as clearly as possible the points you intended to touch upon. Take care not to lecture the class. This is dangerous. To make your exposition effective you must employ the pupils. Put questions to draw out their ideas of the sentence matter; praise good and reasonable answers, and correct erroneous ones. Criticise tenderly yet with a free hand each answer you receive. You will thus be enabled to realize the extent of the pupils' knowledge, which you will at the same time proceed to supplement. Encourage them to make statements clearly and frankly. One sentence, or it may be paragraph, should be fully analysed and explained before you proceed to the reading and subsequent exposition of the next.

Having by the above reciprocal form of discipline profitably sustained the interest and gained the sympathy of the pupils from the beginning to the end of the task, you may safely attempt to teach the reading proper.

This is about the last class in which the cultivation of simultaneous reading may still obtain, because the books now to be read bear very markedly, though less extensively, the characteristics of those more advanced, and hence simultaneous reading may be considered with this class to have served its full purpose, so that recourse to it will be no longer necessary. Here it may be worth noting that if the class be very large it will be injudicious to allow all the members of it to read at the same time. Convenient and selected groups only should read in concert, for obvious reasons. You have already read the lesson sentence by sentence, pausing for comments at the end of each. You may now read the whole lesson, observing all the qualities of good reading as you do so, in order that the scholars, who follow you on their books, may catch the precise characteristics and become imbued with the spirit suggested by the narrative. This done, return to the beginning and commence the simultaneous reading of the lesson. In perfection read a good long swinging clause or sentence. Bid the whole class or group, as the case may be, take a long breath, so as to fill the lungs before beginning, then let them repeat as much as you have read, and so on to the end of the lesson.

Last Stage of simultaneous Reading.

An example will illustrate wherein the groups of words read at a time by the junior classes differ from those uttered by this one. In dealing with the sentence, "The sound of the drum was heard far up the mountain side," you read as a group suitable for the last class, "The sound of the drum was heard." This you followed by, "Far up the mountain side." Now the case is different. You give out almost in one breath for simultaneous repetition by the whole class, "The sound of the drum was heard far up the mountain side," laying particular stress upon distinctness of enunciation and proper inflection. Fluency, or rather proper pace, is a natural necessity, while the rhetorical pauses give effect and piquancy to the effort.

Nature of the Groups of Words.

The simultaneous exercise having been satisfactorily accomplished, you may then read a sentence or suitable paragraph at a time, and let the pupils in succession read after you and precisely as you did. Occasionally when the idea is deep or the sentiment to be expressed difficult, you

Individual Reading.

will find it necessary before reading the sentence to explain it once more, so as the more forcibly to emphasize its peculiarities and equip the pupil with the spirit of the narrative which he is expected to express. The fuller your explanations are, and the more you read to the pupils, the greater amount of self-confidence they will feel; and the more explicit your remarks are, the deeper and more lasting the impression will be, and as a result the better will be the reading. It must not be forgotten that even in teaching reading the blackboard will often be very useful. As hitherto, give special attention to the more dull and backward pupils. Ask them to read much and often. It will be interesting at the same time to note that the more proficient the best readers are the greater will be the stimulus given to increased effort amongst the dullards. In other words, if the standard of reading be high at one end of the class, it will hardly be what might be called low at the other. The reason for this fact, which is worth observing, is not difficult to explain.

The Quantity to be read by each.

You will do well in cultivating expressive reading to allow each pupil to read, not a sentence at a time, but a whole paragraph, because the longer portion affords more scope for a pointed effort at modulation, while it is in every respect the more natural and satisfying of the two.

While the Child reads.

Before a scholar reads he should be perfectly at his ease, unflurried, and collected. While he reads be careful not to interrupt him in any way, nor to ruffle his mental equilibrium by referring to his mistakes as they occur. It is a very hurtful practice to allow his class-fellows to disconcert him by interjecting corrections or suddenly raising hands, gesticulating with arms, and snapping fingers at each slip while he is reading. Such behaviour only frightens him, magnifies his consciousness of error, makes him lose heart, and generally produces a most depressing effect, very obvious in the manner in which he reads the remainder of the sentence. Let the reading be done in profound silence; then challenge his class-fellows to name flaws in the pronunciation, pace, or voice inflection, and generally to give a care

The Criticism.

ful criticism of the reading. As referee you will comment upon the various mistakes and suggested corrections according to their importance before proceeding to the next paragraph. A passage badly read should be done over and over again, till the pupil masters it to your satisfaction. His consciousness of the recurrence of such a discipline will induce him to make a determined effort to read well at the first attempt. If while reading he sticks at a word which he is unable to enunciate—a thing that will occasionally happen even after the teacher has read the sentence before him—it will least disturb his equanimity if you, not the pupils, help him over the difficulty by quietly but promptly pronouncing the word for him.

The Teacher gives Help when the Reader sticks.

At the third and last course of reading the pupils should read the whole lesson paragraph by paragraph without any antecedent model from you; and if the preceding steps have been fully attended to, few or no cursory comments will now be necessary.

The last Step.

Should the interest of the class begin to flag, you have only to select readers promiscuously, and expectancy will create attention, and if attention then interest—the safest guarantee of progress and profit.

To revive the Class.

The more advanced the reading becomes, the greater will be the need of a room as still as possible.

READING OF ADVANCED CLASSES.

The remaining classes in the school have so much in common to observe in the matter of reading that it will be sufficient to refer to them generally. It will be interesting to note the effect produced by uniting two senior classes for reading. As a rule an arrangement of this kind has often an encouraging effect all over. When the class that is ahead of the other, having had at least a year's more practice in reading, is now coupled to one that is very much a novice in the art, the more experienced and proficient of the two will certainly lose nothing by being thus linked to the junior one. The profit in fact is reciprocal. The higher one exerts itself

Classes combined; the Effect.

to show its superiority over the lower, is encouraged in every way when it finds that it so far outstrips its new associate, and is induced to persevere to maintain its position, which, however, it gradually fails to do. The lower class, on the other hand, struggles with the smallest modicum of incentive from the teacher to reach the higher level of elocution which obtains in its neighbour, so that in a short time it will not be surprising to find both classes very much on a par in the matter of reading, the fact being that the senior one has not lost ground by any means, but the junior has made headway, and has in fact overtaken the more advanced. The emulation is laudable, and indeed such combinations may profitably be effected in classes junior to either of these. But although the instruction you give them is practically the same, the higher class has a distinct advantage over the lower, and ought to show a greater amount of proficiency from the fact that its more protracted training should be conducive to greater intelligence, and, as a consequence, to a more finished and tasteful style of reading. In a very short time there will be little difference between them in the matter of pronunciation and fluency, but in *expression* there will probably be, for a time at least, a marked difference.

A few Hints given.

What has been already said makes it quite unnecessary to lay down any new rules for teaching reading at this stage. A few general hints and suggestions will be all that may now be given. The pupils will read with considerable fluency from the fact that they have read much and become thoroughly familiar with a very extensive vocabulary in one way or another. A weak instructor will be apt to accept or even mistake fluent for expressive reading. Into this error no good teacher ever falls. If reading has been taught carefully and systematically from the lowest to the highest class, the pupils of the latter will have come to regard the task as one by no means easy, but yet interesting and fascinating, and, from the pleasure it affords to both reader and listener, one well worth trying to master. In the upper class books, and indeed in any book that pupils at this stage may be expected to read well, the phraseology and even individual

Previous Preparation more and more necessary.

words are getting more and more complicated, so that the necessity for a special degree of forehand preparation on the part of the teacher and a greater amount of explanation when before the class is becoming steadily more and more imperative. Now is the aid of the pupils to be especially enlisted in dealing with the perplexities and peculiarities occurring in the lesson. Question them freely on the subject-matter, and in a liberal spirit praise and encourage their efforts. Then proceed to read the whole lesson in a series of large portions, only stopping to comment upon anything remarkable in the pronunciation or in peculiar emphasis to be employed in bringing out the full import of the passage. It is most essential that the pupils should imbibe the spirit of the narrative from your reading of it.

The Use of simultaneous Utterances.

In the junior classes the benefits of simultaneous reading will have been chiefly reaped. Its adoption now will only be necessary in certain circumstances. Pupils who have attended irregularly hitherto, and whose early training may have been neglected, will yet derive benefit from the exercise. But you will still find a conjoint effort of the pupils desirable in pronouncing individual words, be they monosyllables or polysyllables, and in the utterance of peculiarly accented phrases. In such cases, the discipline is ever most essential. When you pronounce separate words, the pupils should now especially consider your teeth and lips, so that a position in front of the class is the proper one. The utterance of every word should be characterized by clear and distinct enunciation on the part of each child. It is very necessary also that you should read much to the scholars, whose growing intelligence should make them more susceptible of imitating you.

Provincialisms.

Provincialisms and a variety of local peculiarities will long ere this have made themselves conspicuous and caused endless annoyance. They are difficult to eradicate, and in many instances it is all but hopeless to do so. The community from which your scholars are drawn will determine both the quantity and the quality of the peculiarity. It is only by imitating the "twang," and thereby showing the distinction between it and good reading, that the pupils will become conscious of it, and try to set it aside. Without some such discipline, when you bid the scholars read as they speak, the "twang" will naturally be rampant. Great care and perseverance are required to correct all provincialisms.

Books with accented Words undesirable.

Some reading books—generally advanced ones—have in certain lessons numberless accents placed over the words to show the reader where special stress is to be laid, and to determine the inflection and regulate the modulation of the voice. It is feared that these guiding-marks, however laudable the intentions of the inventor may be, defeat the object aimed at. To an intelligent, assiduous, private student, struggling of his own accord to become a good elocutionist, they may be helpful; but to guide an ordinary schoolboy over the difficulties of inflection and voice modulation they are perhaps not quite so useful. Your instruction, the pupil's spirit of emulation, and his sympathy with what he reads, should be incentive sufficient to make him a decent reader. The fewer objects he has to grasp with his eye at the same moment the better. Accents tend to distract his attention from the actual word and his mind from the subject-matter. They, in short, aim at effecting mechanically what should be the outcome of an intelligent and sympathetic mind. It is, in fact, only by imitating a good elocutionist that a good style of reading can be satisfactorily achieved.

Slovenliness and Mannerisms.

Anything in the shape of slovenliness is to be repressed with a firm hand. It is totally different from flurry, though the one may be the result of the other. A mannered style of reading is also easily acquired. It is readily detected as a fraud, and should be guarded against. Closely akin to this last is overdone reading, where the accents and voice inflection are unduly and unnaturally emphasized. Extra familiarity with what is read is apt to foster this habit.

Poetry lends itself in a peculiar degree to the acquirement of a good style; but this is dealt with in another chapter. But while some pupils, from their mode of speaking, tend to "drawl" out the words, others are apt to read them in a series of cadences, the voice gradually sinking as they proceed, till by the time the end of the sentence is reached, the voice is scarcely audible. All these defects, like the provincialisms already referred to, can only be remedied by constant, careful application, and the closest imitation of your reading.

Long Paragraphs to be read.

As it is no criterion of his ability to read that he can pronounce a succession of words rapidly and with correct accentuation, so far as it goes, each scholar should be asked to read a long substantial paragraph. Every sort of encouragement will have to be given, and special care taken to accustom the class to the maximum of self-confidence and self-reliance.

Shyness on the Part of the Teacher.

On good and bad Readers.

Young and inexperienced teachers may sometimes be apt to exhibit an absurd sense of shyness to show a good specimen of reading. None are so quick to detect this weakness on the part of the teacher as the pupils themselves. Its effect is both disheartening and deplorable. Habitual reading aloud, and even in public, will soon dispel the feeling, which otherwise it will take years to overcome. If confidence in yourself is in such bondage, if, while you are conscious of your weakness, you cannot bring yourself to do what you would, how can you make or expect your pupils to feel that, when they read, they must take the place and endeavour to exhibit the personality and characteristics of the speaker or the doer; that they must, in fact, come out of themselves as a good actor does; that their own individuality must sink into temporary oblivion; that the thoughts of the speaker must become their thoughts, and his words the precise expression of their minds? The pupils of a teacher who reads well are pretty sure to be good readers, and well-taught pupils will be proud of their proficiency, and more willing to show off their ability than to exhibit shyness and apathy. On the other hand, badly-taught pupils will be ever conscious of weakness somewhere, and will have no confidence in their own ability. Their efforts will be tasteless, stumbling, and perfunctory. The reading lesson should be approached by you in a spirit of firmness and dignity. On your own bearing in presence of these advanced pupils success or non-success will greatly depend. It may occasionally happen that a pupil in his attempt to read with due expression fails to such a ridiculous extent that his class-fellows can scarcely restrain themselves. When this occurs, if you are satisfied that the effort is *bona fide*, you must put down derision with a firm hand and commend the effort, else further progress of an elocutionary nature is at an end in so far as this pupil is concerned. Endeavour to get your pupils to think highly of their ability to read, and you will find that this attitude of mind will bespeak encouraging progress.

Derision of Class-fellows to be suppressed.

In conclusion, bear in mind that a good elocutionist must not be by any means a good actor, though the latter will necessarily be a good elocutionist. The actor is both the speaker and doer, conducting himself in accordance with his utterances and the sentiments he affects. He has, in short, to suit the action to the word, both being in perfect harmony. The elocutionist, on the other hand, is the mouthpiece of the writer, whose thoughts he utters with due sentiment and decorum.

Summary of Hints on teaching Reading.—A few general statements applicable to each and all of the foregoing classes may in conclusion be conveniently summed up :—

1. Let your pupils understand as early as possible the precise meaning conveyed by such stock terms as "fluency," "expression," "articulation," "monotony," and, in fact, all the terminology peculiar to the conduct of the reading lesson. Then, when any of these is uttered, the child will at once understand what he is expected to do.

Meaning of Terms.

2. Prescribe only such a portion for a reading lesson as pupils in their circumstances may reasonably be expected to master at a time. It is dangerous to prescribe too much. Thoroughness in what is learned will often be found ample compensation for the limited quantity read.

The Portions prescribed.

3. If possible, it is most desirable that the next day's lesson

should be overhauled and prepared in school. The reason for this is obvious. Before a child pronounces a word or syllable it costs him thought, and what he thinks most of he remembers longest. If, therefore, he is left to his own devices and investigations at home, or has to appeal, it may be, to an illiterate parent, to arrive at the pronunciation of a word, he will appear at school having his mind stuffed with erroneous ideas and mispronunciations, which it will take no end of trouble to eradicate and correct. Your review of the lesson before sending the pupil home will tend to obviate all risk of his assimilating home errors.

The Preparation of the Lesson.

4. Practice in reading, both in school and at home, increases familiarity with individual words. This is particularly to be noted in the case of the junior classes. While you encourage them to read much, let them also read aloud, but not bawl. This accustoms them to the sound of their own voices, improves articulation, and inspires self-confidence.

Reading aloud.

5. You will find that the nature of the subject demands a variety of reading books. For fostering as well as testing reading, especially in the higher classes, newspapers, which may yet come to be daily read by the pupils, will be of great value. Lessons should be frequently revised. Those who read most almost invariably read best.

Variety of Books and Newspapers.

6. Carefully prepare the lesson yourself before you face the class with it. This injunction applies in an especial degree to the tasks of the upper classes, which, in order to be effective, require a deal of previous forethought and consideration. You should be ready to make the most of your time while you have the class in hand, by having your mind already made up upon every point you mean to speak of. By such preparation, hesitancy will be set aside, there will be full confidence in the teacher, the work will be greatly expedited, and cheerful, satisfactory progress secured.

The Teacher's Preparation of the Lesson.

7. Inexperienced and subordinate teachers will require much

guidance when teaching reading. To what extent they are to be intrusted with such work the status of the class and the natural ability they display in that direction will determine.

Inexperienced Teachers.

8. When teaching reading, unless in the case of gross irregularity, inattention to instructions, or patent carelessness, be very guarded in having recourse to corporal punishment. If at all, it should be inflicted after the lesson, never during it.

Corporal Punishment.

9. In the upper classes, the degree of facility with which you can follow the reader without a book will be an important test of the quality of the reading. When the pupil knows that one is trying to grasp what he reads, he is stimulated to do his best. He becomes more conscious of the listener than of himself, and as a consequence the reading is more natural and more satisfactory in every respect.

Testing Reading.

NORMAL SCHOOL CALCUTTA FACULTY

CHAPTER II.

WRITING.

INTRODUCTORY REMARK.

THE pupils are introduced to writing in its most elementary form in the infant room. On emerging from it they are supposed to bear with them a knowledge of the single and capital letters of the alphabet as they are ordinarily written. Some may be able to do more than this, and few infant teachers will be satisfied unless their infants can leave them able to write their own names, as well as that of the school. They should have been taught to write the letters between lines; but if this has been overlooked it will be necessary, in order to expedite subsequent instruction, to show them in the first instance how to write all the letters, single and capital, between ruled lines, before allowing them to deal with whole words. It will be well to do this in any case in order to bring the whole class up to a uniform level of proficiency to start with.

FIRST STEPS IN WRITING.

The Blackboard.

The process is essentially mechanical, and although much care and skill of a kind are necessary in the teaching of it, no extra amount of scholarship is required to produce excellence in writing. It can best be taught by means of the blackboard, as a medium of demonstration, whether the pupils are to write on slates or copies. The surface of the board should have a dull appearance. It can best be prepared for writing by coating it with paint thinned with turpentine, and having no admixture of oil in it. Preparatory to the lesson, the board should be cleaned to a fault, no stain being left to catch the eye or distract attention. The light in which it is set is very important. Set it so that every child in the class can see it as well as possible, and test the various situations by stationing yourself at those points from which the worst view is likely to be obtained. These apparently insignificant preliminaries are very important, for failure at any point to see the board specimen may retard the progress of the class.

The Chalk.

Patent prepared chalk is the best, and is only a trifle more expensive than the raw material. If it is not already permanently done, rule the board with chalk lines, sufficiently far apart to give the eye the impression of half-text. Before this, you should have gone over the pupils' slates and seen that they are all properly ruled, the lines being parallel and deeply scratched on one side. All pencils should be of fair length, and neatly pointed at one end, which is to be used for writing only. Your class being properly arranged, cast your eye around to see that the slates are in proper position, and all feet firmly set on the floor. Before proceeding with your demonstration, lay down the injunction that no one is to write while you are writing, but that every eye must watch your hand. That done, proceed to write the first word. If it be "the," you will make the initial capital *T*, and as you do so help to sustain attention by a sort of explanation of the work. For instance, you might say: "I shall begin about as far above the line as is the space between the lines, and I slightly slope the letter." You now pause while the pupils make the *T* just as you have done it. Meantime, you may go behind them to supervise, correct, and encourage their efforts. *T* having been placed in proper form and position, go again to the board, make *h*, and explain its junction with *e*, the pupils as before closely following your operations. They will now complete the word on their slates. The remaining

Ruling of Board and Slates.

The Writing.

words of the line may be dealt with in a similar manner; but for first attempts only two or three should be written, and occasionally one word, if large, will be a sufficient lesson. It is very desirable to select such words as contain letters which will impart a lucid idea of the various relations of letters to one another in point of form, length, and joinings. If they have not been taught to do so before this time, children will make progress by being set to write their own names and also the name of the school. This is a feat which most young children assiduously strive and feel proud to accomplish.

Things to be specially attended to. To insure successful teaching, a few points demand special attention:—

1. The slates and the pencils must be suitably prepared.

2. Careful observation should precede every attempt at imitation. Never allow a child to make a stroke while he should be wholly engrossed in contemplation of your hand tracing out the letters. A casual glance, followed by a vague impression of the shape and situation of the letter, whether on slates or paper, invariably results in an unsatisfactory reproduction of it. In such a case, it is merely the name of the letter that the pupil wishes to know; the points connected with the transcription of it he evolves from his own brain. This is injurious.

3. As you write, and even after you have done so, call attention to the various joinings, positions between lines, and the various lengths of the different letters. Repeat your remarks once or twice before a pencil is lifted. For instance, let the pupils know that *p*, *q*, *g*, *f*, *y*, and *j* are of the same length below the line, just as *b*, *d*, *h*, *l*, and *k* are of the same height above it, while *t* is a good deal shorter, and so on. In this way both interest and attention will be secured just at the critical point; and depend upon it, the effect will manifest itself in the efforts to reproduce your specimen.

4. For some time, when you can attempt as much, write on the board the whole line to be copied, the pupils being still observant till you have finished. After that, and your explanations, they may be allowed to transcribe it.

5. Insist upon every child using his right hand, and early associate the idea of the right hand with the writing.

6. Commend careful and painstaking caligraphy at all times. Because the process is so mechanical, it is within the power of the greatest dullard to excel in it. Excite emulation by some form of promotion. To seat children according to their proficiency is a very effective method of stimulating them to increased effort; but of this again.

Slovenly Writing.

Pupils tend to write slovenly just because they are permitted to write fast, carelessly, and without sufficient antecedent observation of the letters in point of formation and different connections. Fast writing, which is particularly to be discouraged, may be remedied by curtailing the exercise. A certain measure of disgrace attaches to this proceeding which tends to cure the evil. If you accustom your scholars to hold their pencils, which should be considerably longer than the forefinger, as they will yet have to hold their pens, more than one benefit will accrue.

Misspelling.

Misspelling should be severely visited. It is a sure mark of gross negligence, and a distinct proof that the eye is not exercised to a natural and necessary extent. The habit of slovenly observation must be detected and corrected. Where the writing appears as a mass of irregular, disconnected, and badly formed letters, either carelessness on the part of the pupil, or lack of careful and methodical instruction on that of the teacher, is the cause. It is a capital discipline at the end of a writing lesson (which need only occupy a quarter of an hour) to bid the pupils exchange slates, and underline what they consider faults in the exercise. Again, it is productive of a deal of good, in such a case as this, to copy exactly on the board a carelessly-written word, and to ask the class to criticise its defects. The exposure of the writing brings the writer into disgrace, and while the detection of flaws is an excellent discipline for his class-fellows, it stimulates the child to make a better effort next time.

While you are teaching writing nothing else should engage your attention or that of the pupils. Profound concentration of thought, induced through observation, is essentially necessary to success. Your class must feel that you are quite as deeply interested in the work as they are. When they are set to transcribe a passage for themselves, it will be well to keep in view the relation between writing and spelling. Each word that is written receives a certain amount of thoughtful attention, and that being the case, your selection might be such as will have a beneficial effect upon the spelling. By-and-by the writing lesson may possibly be adopted as both subsidiary and preparatory to the spelling lesson.

WRITING ON COPY-BOOKS.

When a child is able to write the small and capital letters of the alphabet on his slate, his own name, and a line selected from his reading book, he may be considered fit to proceed to the more inviting but hazardous task of putting pen to paper. It is particularly urged that every effort should have been used while he wrote with slate-pencil only, to train him up in habits of neatness and precision. Irregularities are very easily formed, and once they have obtained a footing they are troublesome to eradicate. Copy-books bristle with devices to improve the writing and simplify the exercise. Writing may thus be very easily taught, provided the teacher adopts good methods and attaches great importance to his function. There is no fixed time at which children may have copies placed before them, but, as a rule, they should commence when the slate writing is fairly well executed. A teacher who is a good writer himself will not only take most interest in this branch, but he will turn out the best writers. Children almost invariably take after their instructor in the matter of writing, although there are exceptions to the rule.

The Position of the Body.—Keeping these things in view, you will now proceed to teach your pupils how to sit while writing. In the first place, arrange them so far apart that no two touch each other. It is taken for granted that the desks and seats are neither too high nor too low. Either of these defects is prejudicial to success. The body should sit almost facing the desk, the head being turned slightly towards the right side. The left hand and the arm should be laid on the desk ready to steady the copy and keep the paper flat. Both feet should be planted firmly on the floor, or rest on something. The weight of the legs dangling in space disturbs the equilibrium and stability of the body, which should be as near the desk as possible, and almost erect. The right hand and arm should be perfectly free to move from the right side to the ink-well with very little alteration or shifting of the position of the body.

Holding the Pen.—If you have not already done so, it will now be necessary to teach the pupils the correct way of holding the pen. Be it a pencil or a pen that is to be used, the grasp is the same. There is more than one way of holding the pen, but one that is popular and natural is that which requires that the forefinger shall lie along the top of the pen, with the inside of the point of the second finger touching the right side of the holder. The front of the tip of the thumb presses the side of the pen, and this pressure is applied exactly opposite the joint nearest the point of the forefinger. The two remaining fingers of the hand are turned gracefully inwards, so that their tips form a sort of prop, on which and the wrist the hand resting, a backward and forward, "springy," elastic sort of motion is communicated to the pen or pencil. There is no fixed rule as to the distance of the tip of the forefinger from the nib, but it may safely be said that as a rule the smaller the hand the nearer it should approach to the tip of the pen, and the larger the farther it should be held from it. There are certain positions of the fingers and hand which should be eschewed—namely, the unseemly one of keeping the forefinger bent at an angle of forty-five degrees, and the slovenly one of allowing the hand to lie on its off side, or almost on its back, so that it is easy to see the inside of it during the writing. When the position is natural, the pen and inside of the forearm are in a straight line. That manufacturers make pens to suit every conceivable position of the hand, and thereby satisfy popular eccentricities, is no reason why there should not be a position more natural, convenient, and graceful than all others. As a teacher, you can afford to deal with but one position of the body, and one way of holding the pen. These should be the most useful and natural possible. The elbow of the right arm should be kept pretty close to the body. This insures that the point of the pen is kept flat on the paper, and that the pupil does not write with the side of the nib, thereby damaging it.

Ink and Ink-wells.—Ink-wells should be thoroughly cleansed at least once a fortnight, so that the ink supply may be always fresh and pure, and that all risk of conveying filth from the well on the tip of the pen may be obviated. Teach your pupils how to take a sufficient dip, and explain how far up the nib the ink should appear. They must be strictly forbidden from indulging in the abominable habit of dashing off a superfluous quantity of ink at every dip, to the bespattering of the desks and clothes of those before or behind them. This is neither elegant nor necessary, and it should be viewed in the light of a serious offence. Teach early the most cleanly method of wiping the pen. Nothing more filthy can be conceived than the cleaning of it on the hair of the head. Equally disgusting is the habit of sucking it with the lips. Offences such as these should invariably be visited with punishment. Explain how the pen may be cleaned by means of a small crumb of blotting-paper, or what is preferable, a pen-wiper, which might be attached to the slate as the sponge is. Perhaps the best plan of all is to have permanent wipers of black cloth, a size larger than a crown piece, fastened to the desk by brass nails, one in the middle of each wiper, which might be placed near the ink-well. This appears to be the most cleanly, handy, and permanent scheme yet devised. The black colour of the wiper helps to detract from the offensive nature of the process.

The Blotting-Paper.—Again, the use of the blotting-paper should be explained. Children require to be taught its proper use like everything else. Impress upon them that it should be laid flat at once, and must not be shifted after it has touched the writing; that once placed, it must be held firmly with the left hand, and that then the soft side of the palm of the right hand may be drawn over it from left to right, and always in this particular direction. The opposite movement is disastrous.

What is written last should be blotted first. It will be best to allow a capable pupil or two to dry the copies of very young children, while more experienced ones may be left to do the work for themselves. It will not be long before they are able to perform the operation deftly and expeditiously. Pieces a foot square, doubled once, will be found safest, and very serviceable for all practical purposes.

The Blacklead Pencil.—The first half, or perhaps the whole, of the first copy might be written with a blacklead pencil instead of a pen. This may not altogether meet the wishes of the ambitious *débutant*, but it will be the most satisfactory to the child in the long run. It will serve him till he has mastered all the necessary positions, and will undoubtedly obviate all risk of that discouragement which invariably follows when he has the misfortune to drop on the paper a superfluous quantity of ink, which is only made provokingly larger and more startling by his frantic but fruitless efforts to remove the stain with the forefinger of his left hand, or, what is more likely, the upper surface of his protruding tongue. These opening trials, vexatious alike to teacher and taught, and which are pretty certain to result from a pupil's first attempt at doling out the subtle fluid, will thus be avoided, and with a blacklead pencil the commencement will be more hopeful, encouraging, and less alarming.

The Size of the Writing.—It will be advisable to exercise some care in the choice of copy-books. A fair sized half-text ruling will be well suited to young children, because when the hand comes to be properly held, and a natural movement is aimed at, it will, as a rule, be found that they do not possess that stretch of finger and elasticity of hand necessary for text writing. But while half-text does the same thing in a sufficient degree, text undoubtedly shows to best advantage the relative sizes of the letters and their mode of junction, as well as all the faults and merits of the writing, just as a large photograph shows to the fullest extent the precise features of a face. It is its undoubted difficulty that staggers the good teacher. When the pupils grow older, it becomes an accomplishment to be able to write text well; but a young child can only do so by an up and down, backward and forward movement of the whole forearm. The task which the latter can satisfactorily accomplish is one which necessitates no more extensive motion than a slight shifting of the hand and the elasticity of the fingers can effect.

Instruction and Supervision.—Go round the class to see that every child is properly seated, and that the copy is in right position and all the necessary materials accessible. The copy should be laid so that the foot of the page may be parallel to the edge of the desk, and should lie a trifle to the right side of the writer. Then stand in front of the class and give instructions as to holding the pen. Take one yourself, and placing it between the thumb and adjoining finger, bid the class do the same; then let each child bring down the forefinger upon the top of the pen exactly as you do it. Finally, fix the position of the thumb and remaining fingers; and when the pupils have done that step by step, they will be ready to bring the arm into the writing posture. Insist upon every child doing exactly as you do. Keep a critical eye upon every corner of the class. There must be no shirking of the task and no faint-heartedness. Just before beginning the writing, take a survey of the pupils to see that all are in order and everything ready for a simultaneous commencement. Awkward pupils will require most attention. No matter what the lesson is, whether hooks, crooks, or words, blackboard demonstration is necessary and subsequent supervision imperative. Write the headline of the copy which forms the lesson for the day, while the pupils simply observe and drink in your explanations. A new interest attaches to the exercise from the fact that it is now to be performed on paper instead of slates. This precludes the possibility of making satisfactory corrections, however desirable. On this account increased attention to every explanation and every movement of your hand will be doubly essential. The discipline is much the same as that to which the class was subjected at an earlier stage.

The Use of the Headline.

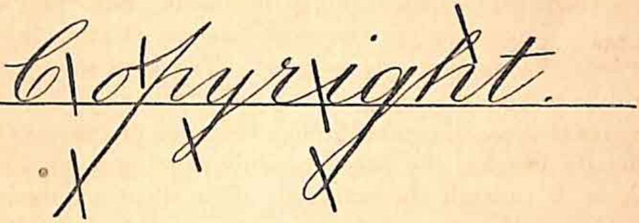
Don't mistake the object of the headline of the copy. It is not meant to save you the trouble of teaching, although its presence is undoubtedly an aid to the teacher as well as the pupil. It is accepted as a suitable word in the first place, and secondly it is a convenient guide to the writer, while endeavouring to carry out your instructions with creditable effect. A child will never scan the word so critically, nor will its impression be so lasting, as when you write and expound it to him on the board. It then becomes indelibly fixed in his mind, and the casual glance at it on the copy enables him to proceed with some degree of confidence and success. Any child will copy the line in some form or other, although it be lithographed vexatiously beautiful, and he will even do so without any instruction from you; but your function is to teach him how to do it correctly, and how to excel in the task, ever keeping before him the high and perfect ideal of the headline, which he should concentrate his care and efforts in some degree to approach. Be very particular about your board-model, for upon its appearance will depend very markedly the quality of the pupils' writing. In all probability they will be more interested in it than in the actual headline. What interests most and absorbs keenest attention sinks deepest into the mind. In most cases it will be found advisable to write the whole word on the board at a time; but should it be too long to be profitable, write only the half of it. After completing the specimen and rehearsing the main points to be attended to, give the signal for the class to begin writing. While they do so, go behind them for purposes of assistance, guidance, correction, and encouragement. Supervision is indispensable, and it must be immediate.

The Cause and Correction of Errors.—The errors likely to be made are of considerable variety. They are the result of carelessness rather than of physical defects. When the conditions are normal and equal, those writing the same word should begin and finish it almost at the same time. Some, however, write faster than others, for a variety of reasons unnecessary to quote; but so long as the effort is well meant and the effect satisfactory, it will be a pity to contemn despatch. When, however, slovenliness is imprinted upon the writing, the child must be restrained, his defects pointed out, and the fact impressed that a speedy hand does not betoken excellence in the art. To copy the defective writing of a pupil on the board, and subject it to the criticism of the class, will have a very beneficial and corrective effect. This discipline the pupils will also enjoy. Repetition of a mistake, whether in spelling or caligraphy, is positive proof that the child is copying his own writing. Again, while a mistake in spelling is a guarantee of carelessness and inattention, it is not a blemish of the writing itself; but it should, nevertheless, be visited by some sort of punishment. Some may think supervision of the work immaterial after the task has been clearly specified. The most they possibly do will be to take the copies at the end of the day, dash a few indefinite blue pencil marks through the more prominent errors, and finally disfigure the page by boldly running a hand-length F, G, or B through the writing. This silent expression of opinion probably does not much concern the pupil when he proceeds to the manipulation of next day's exercise. In the eyes of the parent it may count for supervision; to the child the marking amounts to little. This mode of dealing with the copies is unsatisfactory, and the teacher might as well not spend his time scrawling such disfigurements, which are practically unproductive, because the next lesson embodies a line or word the parts of which are totally different in their arrangement. Metathesis, and the gross error of dropping a letter, may, under such a *régime*, be continued to the foot of the page, when the subsequent blue marks will avail little; but if the slip be checked at the time the lesson is progressing, a repetition of such mistakes will be summarily prevented. As you go amongst the pupils, quietly call attention to their errors, and keep them before their observation by making a small red or blue mark at the place. When it is necessary, take the pen and show a backward member of the class how the writing should be done; but the pupil should always be allowed to write the first line at least before you show a model, in order that you may have proof of his weakness, and be in a position to specify and deal with his shortcomings. Your presence at this time has also a stimulative effect, obvious in the increased attention which the pupils bestow upon the work. But although you spend the

A bad Method.

Specimen of Revision.

whole time going from pupil to pupil, at the end of the lesson there will yet remain many mistakes unmarked. These you will go over leisurely at the end of the day, marking all those of vital importance. An example will best illustrate the appearance of a carefully-revised copy. The reversed sloping strokes indicate where the coloured marks should appear. The stroke between *c* and *o* denotes that they are too far apart. That between *o* and *p* indicates that the junction is defective; the one on *p*, that it extends too far below the line, and so on. If you continue to comment upon the nature of the error as you mark it, the child will be able, after a lesson or two, to interpret the strokes for himself. The import of your marking might be profitably and expeditiously illustrated from an exaggerated example on the board. But it is unnecessary to be too finical, because the pupils' work at any time is a long way from perfection, and marks in excess might tend to dishearten rather than encourage them. Before next day's lesson is commenced, the scholars should sum the marks on the preceding page, and write the total number in figures at the foot. This will tend to stimulate every child to have a cleaner sheet next time. If it be strictly adhered to, there will be a perceptible falling off in the number of marks as the end of the copy is approached. Further, if he is given to understand that advancement or the opposite will entirely depend upon the total number of bad marks in his copy, you will find that he will exert himself to the utmost to produce as low an aggregate as possible. Although this form of marking is specially adapted to small-hand, which is the ultimate and the practical one, it will also be found very useful if adopted in the revision of half-text writing, in which, how-



ever, for a time at least, the marks will be made over errors which are more general than particular in their nature. The degree of strictness in this respect should bear some proportion to the advancement and status of the class. The same copy should be written and rewritten till the pupil can do it well, before he is allowed to attempt a more advanced one. To "skip" or pass over a copy is most injurious. These books are graded and progressive, and no satisfaction can result from omitting one or two numbers now and again. Good writing is not taught at a bound, nor by fits and starts. It is the result of steady, careful application in a well-defined groove.

Rapidity in Writing.—Some pupils have a perfect *cacœthes scribendi*, which, *cæteris paribus*, is not to be discouraged. But as fast writing tends to degenerate into a slovenly style, you must be careful to check it where the results promise to be unsatisfactory. A gradual increase in manual dexterity should mark the child's progress in the art from a lower class to a higher. In the highest, of course, he should write fastest, yet preserving legibility and all the characteristics of good writing. It is quite unreasonable to suppose that a child of thirteen should write no faster than he did at ten years of age. While he may be permitted to write his copy with a degree of slowness and precision, such as should characterize a special exercise, he should at other times cultivate a running, symmetrical, and steady hand, such as might obtain in a letter written to his parents after he leaves school. Ultimately whole words will have to be written without lifting the pen. But this applies specially to small-hand. Practice in any line may lead towards perfection, and the more he writes the greater proficiency he should attain.

The Small-hand Headline.—The writing of the intermediate and senior classes differs from that of the younger children in its size rather than in the proportion of letters and their parts. So far as instruction in the art is concerned, the same rules already laid down in the case of half-text apply. Many of them are even more emphatically applicable to small-hand. It must not be imagined that when small writing is reached all instruction in the art may cease, and the embellished headline be left as the sole guide. There is no doubt that the habits which the child has acquired in the matter of positions of hand and body will be carried along with him, and that if they are correct, he will proceed with ease and grace rather than restraint and awkwardness. Even the small headline will, in the earlier stages at least, have to be explained on the board. The amount of instruction necessary depends more upon the difficulty of the task than upon peculiarities in the style of the writing. Both sloping and perpendicular, angular and round hands are practised, all of them with equally beautiful effect. Publishers have abundantly pandered to the capriciousness of even the most fastidious. All aim at legibility, the first essential quality of writing, and the one which embodies all the others, so that they need hardly be named. They are obvious on the face of every headline, and need no specification. It is better to be able to do the work than to tabulate the good qualities of it. Adopt the style of penmanship you intend to teach. The light up and the heavy down stroke may possibly be looked upon as savouring of the past, of the days of crow-quills and portable headlines. Still there is a good deal to be said in favour of this aspect of the writing; for what can be more natural than that the pupil should put more pressure upon his pen when he draws it towards him than when he pushes it away from him? and if this natural effort, which he can with difficulty avoid even if he tried, produces an agreeable impression upon the eye, where is the harm? So long as the desirable characteristics of good writing are preserved in the shape of legibility, regularity, and neatness of tone, this result of a perfectly natural movement of the hand is surely not to be despised. In the hands of a skilful teacher and tasteful scholars it has its special charms from the artistic effect the effort supplies. In after years, when the hand has been formed and rapidity becomes a dominant feature, the effect will be less defined. Still the tone and finish which are conveyed to a child's mind are at the commencement a valuable discipline of themselves. If this particular style be adopted, take care that the pupils do not make the hair strokes too fine to be discernible, and the heavy ones so thick as to be obtrusive.

To obviate the tendency of a pupil to copy what he wrote last, instead of the lithographed headline, various devices have been adopted. Amongst others, the headline is repeated halfway down the page, and some have two different lines printed on the same page. This is the most that can be done; but, after all, the character of the writing will be more influenced by your instruction and supervision than by any amount of mechanical arrangements. The manipulations are in a measure simplified, and encouragement added, by the introduction of guiding lines and dotted models, which the pupils are supposed to trace out. In the earlier stages, with a due measure of instruction, these may be of some practical service.

The Lesson varied.

Occasionally the writing lesson should take the form of a transcription, dictation, or composition exercise on paper, so that the rules laid down for copy-writing may be familiarly known and practised in the form which the writing will ultimately tend to assume.

On Punishment and Encouragement.—Punishment for misspellings and carelessness should not be inflicted during the progress of the lesson, because no child can write well whose nervous system is shaken and unstable, and his fingers tingling and trembling under the strain of mental excitement. A steady eye and hand, as well as a cool frame of mind, are conducive to success. Again, to exact by way of punishment the writing of a fixed number of lines transcribed from a reading book is obviously detrimental to good caligraphy. Fraught with quite as much danger and injustice is the writing of a certain number of extra lines in the copy during the play-hour. The adoption of either of these modes of punishment should not be thought of for a moment.

By way of stimulating the pupils to increased effort, and at the same time fostering a healthy spirit of emulation, you will find it profitable to arrange them in order of merit at the writing lesson. Seat the best at the top of a particular desk, and the worst at the bottom. The rearrangement of the class might take place weekly, in order that dethronement for a whole week may act as a sufficient incentive to further effort.

After the Writing Lesson.—The task for the day being finished, on a fixed signal being given each child should sit up and look "attention." He will then wipe his pen and lay it on the desk. If he is sufficiently advanced and intelligent, he will then proceed to use the blotting-paper. Very young children should be at once removed from the desks, and their copies blotted and collected afterwards. Older pupils, after drying the writing, might pass the copies, arranged according to their numbers, to the end of each desk. They can then be collected and stowed away till next lesson. To have the copies of each class numbered, as well as named, will save a deal of time in distribution, and may be made to facilitate the collection.

The Pens used.

It is a mistake to suppose that an extra broadly-pointed pen is the most suitable for text-writing, and that small-hand can only be successfully executed by one as sharp as a needle. Perhaps the medium-pointed pen will be found most serviceable for all practical purposes in school; but make it a rule to adhere to whatever form of pen you first put into the pupils' hands.

FIGURING AND SUM-SETTING.

Closely allied to letter-making is figuring. Well-formed figures, whether on slates or paper, are very agreeable to the eye. It is very easy to teach your pupils to figure well, because the variety of forms is so limited, and they do not occur connected like letters. Some copies have the last line of the page devoted to figures, the formation of which you will be careful to explain and illustrate on the board by way of a special lesson. The pupils must not be allowed to imagine that the exercise is shelved to the foot of the page to mark its insignificance, and that on this account it is deserving of little attention or care. Insist upon the task being carefully performed. By-and-by whole sums will have to be written on paper neatly and methodically, and the degree of care which characterized the work on the copy will undoubtedly make itself felt in the more extensive operation of sum-setting. For such an exercise time should occasionally be allowed. In order that the pupils may be enabled to grasp through the eye the good points of the exercise, a sum worked out on paper as a model of neatness should be put before them. One sum in each rule might be worked out on a sheet of foolscap, pasted on a piece of cardboard for preservation, and suspended on the wall in close proximity to the class. It would thus be readily accessible to the pupils at any time, and always available for individual scrutiny. In this form it will also be particularly useful, because it can be laid on the desk beside a specially backward pupil, who will benefit immensely by occasionally making a copy of it. **The Ruler.** The proper use of the ruler should also be taught. Flat, not round, ones are the handiest for children. The advantage of the splayed edge should be illustrated. Point out that it must always be turned towards the paper. An instructive lesson in sum-setting might be given somewhat as follows. Rule the board to correspond with a page of foolscap, and upon the lines place a sum newly solved by the pupils. They will then make an exact copy on paper of what you do by stages on the board. Horizontal lines only may be used. Perpendicular ones make the process too stereotyped to be of practical value, and, while quite unnecessary, are apt to be bewildering. The neatest combination of writing and figuring is observable in book-keeping, the discipline which may obtain in the most advanced class. Yet every class in the school can show proficiency in its own sphere: expertness is the result of practice, while excellence is the outcome of care and perseverance.

CHAPTER III.

SPELLING.

SPELLING OF THE JUNIOR CLASSES.

SPELLING has to be taught, not solely examined. Although there is no doubt that the child has to exert himself, and is capable of doing a great deal of himself, the teacher has his own share of the work to perform. Speedy proficiency in spelling demands early and very systematic training. Both the attention and memory are brought into vigorous activity, with the result that the powers of concentration, uptake, and retention are steadily developed.

To be taught.

In the lowest class the task exacted of the pupils is the oral spelling of a few words, chosen at random, and which occur in the lesson just read. This drill on a few comparatively easy words, but difficult enough for them, is found very agreeable, generally sufficient and well performed. Analysed, such a discipline seems to amount to this: a child's early attempts at reading necessitate a certain amount of attention and concentration of his faculties upon individual words, so that their appearance becomes indelibly rooted in his mind, and when occasion requires he has little difficulty in recalling the sequence and names of the constituent letters. The phonetic element is of immense assistance to him. The words in the most elementary books are so much alike and recur so frequently that the daily oral exercise, varied now and again by your writing a few selected new

Spelling of the youngest Classes.

words on the board to be copied on slates as a combined writing and spelling exercise, will be found to insure all the progress you expect at this stage. Accustom young children early to distinguish between the spelling of simple paronymous words, often the most troublesome of all. When you ask them to spell such a word as "see," add, "to look with the eyes;" then ask them to spell "sea," meaning "the salt water where the ships are." If you persist in thus associating the word with its tangible meaning, the pupils will experience no difficulty in spelling the word correctly when they reach a higher class, and are able to interpret the context.

Home Work.

There is no harm, but the opposite, in requesting that the spelling of a few words should be learned as a home lesson; for the more a child's attention is given to a word the sooner he will be able to spell it. But the chief thing to keep in mind is that spellings are soonest and best learned by writing the words. In the case of very young children, in particular, this *régime* must be adopted with that caution which will prevent good spelling from fostering slovenly writing. If circumstances admit of it, you may exact from them the spelling of a few words, or even lines, which they may have prepared on the preceding night as a home lesson.

The Teacher's Duty.

But as they grow older a large share of the work of preparation will devolve upon the teacher. Judgment and careful selection will have to be exercised. You will have to call attention to such words as are most apt to be misspelt, to give useful hints and "keys," and generally to deal with such words as will tend to improve the spelling. By easing the burden of the task you aid the memory, and at the same time increase its power of retention. In the higher classes, and particularly in the lower ones, the pupils are very apt to misspell a few simple enough looking words because their usage and peculiarities may not have been explained by the teacher. He may consider this unnecessary, and may have come to the conclusion that accuracy in spelling depends upon mere habit and association of sounds, and that it is only attained through a combination of chance, repetition, and time, with a good memory as a sort of "hold all." It is the biggest words in the lesson that alone concern him. The pupils are supposed to commit the spelling of these to memory by way of a home task, and just as convenience, individual aptness, and ingenuity shall conjointly direct. The teacher is an examiner, not an instructor. This tardy and laborious method of acquiring knowledge entails years of irksome mental activity to achieve even a modicum of success. The words referred to are "their," which is spelt "there;" "too," which is spelt "to" or "two;" "no" written for "know;" "new" for "knew;" and verily "dose" for "does."

Such mistakes as these can only be corrected by the teacher putting forth a pointed effort to train the child to discriminate. He ought to train his scholars to understand that there is a definite arrangement necessitating the spelling of the word in a particular way. It is hopeless to expect that the mere marking of an error or the oral correction of it will ever enable the pupil to spell it correctly, even if the flavour of the rod be added by way of fillip. It is also difficult to conceive what satisfaction the teacher can have who, without making any effort to explain the nature of his mistake, chastises the child, who is left in a state of hopeless bewilderment, with the temperature of his cheeks or his fingers abnormally high. The child is utterly powerless. He is aware that an error has been committed, and the vehemence of the teacher and his own perturbed circulation convince him of its enormity. He is conscious also of the nature of the error; but to him its cause and its remedy are an unfathomable mystery. The only course left open for him is to adopt the other spelling of the word next time it occurs. He does this. Unfortunately it is wrong, and the result is a repetition of the chastisement of the preceding day. But this is not teaching in any sense of the term; and while the pupil makes no headway, he becomes thoroughly disgusted and disheartened. It is when spelling is taught methodically and pleasantly that the teacher will have least to complain of and the children most to be thankful for.

The practical mode of conducting the lesson may now be illustrated. In presence of your class, which should be most attentive, write on the board "their," and explain that this spelling of the word-sound generally occurs before "things," or say "nouns" (if they understand what these are)—such as books, days, hands, etc. Write the word "noun" after "their." Further, point out that it occurs before such words as "good," "bad," "little," etc., which are adjectives. Write the word "adjective" after "noun." Then add that it is always "their" before the word "own." Put "own" after "adjective." Now take the pointer, and as you indicate the words, bid the scholars repeat simultaneously that "their" is spelt "their" before "nouns," "adjectives," and "own." Then write "there" below "their," and explain that this is the spelling when it means "place," or when it occurs before the verbs "is," "are," "was," and "were." Write these words after it, and let the pupils repeat the statement simultaneously a few times to impress it upon the memory. It will improve your explanations if you add a few sentences illustrative of the usage of each word. In conclusion, make a few sentences, and challenge the pupils, selected indiscriminately, to spell the catch-word in each. Again vary the exercise by encouraging them to make short sentences involving a particular spelling of the word. Then write "too" on the board, and point out that it is thus spelt before the words "far," "near," "much," and "many," which write after it. Then impress the fact by calling attention to phrases in the reading lesson in which the usage occurs. Point out that "two" is correct when the number two is meant, and that "to" is the spelling in all other cases. In a similar method deal with "new" and "knew." Write both of them on the board, and after explaining that the former is an adjective and the latter a verb, or that the former names a quality while the latter expresses action, put after their respective words "adjective" and "verb," with an example to illustrate each. Similarly "no" and "know," both having the same sound, may be treated. Make it known that "of" is sounded "ov," and "off" just "off." The list of words might be extended, but their method of treat-

The Spelling Lesson illustrated.

ment is the same. Thus you see the words have to be dealt with individually, deliberately and clearly explained, the clues to their recognition neatly tabulated on the board, and their spelling impressed by repeated concurrent questioning of the class and by drill in the construction of sentences involving the spelling of particular words. A few reiterations of this ordeal will make the pupils sufficiently acquainted with the spelling of all such simple but vexing monosyllables. When a word may be spelt in two ways, some may prefer to deal with one of them only, and then point out that in all other cases the other spelling is correct. This method may be good enough, but the explanation of the spelling and usage of each word is a valuable intellectual discipline of itself. It is a good plan to write a series of sentences on the board, and challenge the pupils to supply the correct spelling of a word which you have studiously omitted. Even in the dictation exercise there should occur a few catch-words such as your teaching is specially meant to deal with. Some such methodical way of handling spelling, if persisted in, will ultimately prevent the pupils from making errors in the selection of the letters of a word having more than one spelling.

The Spelling of "receive," "believe," and Words of this Class, taught.

There are a few ever-recurring worries by which children are easily tripped up. They belong to the class of words of which "believe," "receive," and "siege" are familiar examples. Here again a short time spent in careful teaching would obviate all risk of future error. Write on the board the words in this order :—

- p-ie
  - p-iece
  - p-ierce
  - p-ier
  - t-ier
- r-ie
  - gr-ief
  - retr-ieve
  - repr-ieve
- h-ie
  - th-ief
  - th-ieve
- s-ie
  - s-iege
  - s-ieve
- l-ie
  - bel-ief
  - bel-ieve
  - rel-ief
- c-ei
  - conc-eive
  - dec-eive
  - rec-eive
- exceptions
  - seize
  - leisure
  - their
  - heir

Then take the pointer and call attention to the fact that after the letters *p*, *r*, *h*, *s*, and *l* comes *ie*; and that the letter *c*, which is remarkably like *e*, takes *ei* after it. Repeat the explanation a few times, and after the pupils show interest and comprehension of the facts, proceed to give them the following rule for their guidance. Write it, and let it be committed to memory :—

Put *i* after *p*, *r*, *h*, *s*, and *l*,
And *e* after *c* (so like), when you spell.

After writing it, read it slowly, and, with the aid of the pointer, appeal yet again to the facts exemplified in the specimen above. There is another and perhaps a terser rule which is by no means new, and which may be familiar to most though not to all teachers. It runs thus :—

Unless preceded by a *c*,
The *i* is placed before the *e*.

It is a very neat rule indeed, depending for its succinctness upon the elimination of individual cases. It will be most serviceable to older pupils, while the former and more pictorial couplet will give the younger ones the best grasp of the spelling. Before concluding this lesson, point out that "seize," "leisure," "their," and "heir" are exceptions, and take *ei* where *ie* would naturally be expected. The fact of their being exceptions will render them the more easily remembered. Proficiency in spelling is largely acquired through the eye, and on this account the board should be handy and in constant use at every lesson. It enables you to explain the point to your class as a whole, and at the same time presents the word to the eye with telling magnitude and perspicuity, thus materially aiding the mind endeavouring to grapple with it. The former of the above rules is by no means exhaustive, but it will be found of some service so far as it goes. While the younger children are learning to pronounce separate words preparatory to the reading lesson, they might be asked to spell them either individually or simultaneously; but, in any case, insist upon it that the eyes are kept fixed upon the letter that is being sounded. This will also be a good preparation for the dictation exercise. Lists of difficult

Exceptions.

words—which observe are not always the biggest in the lesson—should be written on the board. The pupils ought to copy them on slates, each word being written four or five times in succession. The board will also magnify the difference in spelling between words similarly pronounced. The pupils should spell the words simultaneously while you point to each letter as it is being sounded.

Spelling all the Words in the Book.

The status of the class of course determines the vocabulary to be acquired, the spelling of which is by no means insurmountable. The books contain few words that are not used in ordinary parlance. It is a formidable undertaking for scholars to write every word in a book in the hope of thereby acquiring thorough proficiency in this branch; but although a teacher may be allowed a measure of credit for his laudable intention, the task is not one which will meet with widespread acceptance in the profession. It is somewhat apt to disgust and weary the child, who doubtless contemplates the mass of leaves ahead of him with anything but pleasurable feelings. His tendency will be to skim, perhaps overlook, essential words in his hurry to reach the end of the manual. In this case thoroughness in spelling does not exist in the steady stampede through pages of new words. The one dominant feature is hurry. The anxiety to overtake a certain number of pages usurps the desire to make the spelling of every word in the passage the property of the memory. The well-grounded and carefully-taught child "hastens slowly" but surely in spelling.

The casual glance at familiar words keeps them fresh in his mind. The new ones the teacher calls his attention to, leaves him to study, dwell upon, and write again and again, till they become so firmly rooted that at the subsequent utterance of the name-sound each stands forth on the platform of his mind instantaneously, and withal as vividly as would the face of a companion at the mere mention of his name. Be assured, then, that whatever you attempt should be thoroughly mastered; for there can be no question that perfect familiarity with words which have come under observation will more than compensate for any loss apparently sustained through the study of a limited vocabulary. Thoroughness in spelling, as in every other branch of the school curriculum, is of primary importance. Take care that your pupils do not waste time by looking at words which they know already. Young children are apt to do this, being naturally beguiled into a reconsideration of them by imagining that they are making progress in the task while repeating what is agreeable by virtue of its being already known. A good teacher is able to tell at any time what words his scholars can spell and what they can't. Go over the page while the pupils accompany you on their books, note the words they are to attend to and copy on slates, and see that these are perfectly known before the next lesson is prescribed. The dictation exercise will enable you to test the proficiency of the class; but of this again. There is a point that requires special remark. It cannot be too strongly urged that while the intellect of the child is to be vigorously exercised with a view to strengthening his memory, the eye must be accustomed to look incessantly at the word the time its spelling is under consideration. And not only is the spelling of the *ipsum verbum* to receive attention, but its constituent elements as determined by the surrounding words must not be overlooked. Still, just as in grammar a child that really understands the function of a noun or a verb will never mistake the one for the other, no matter in what connection the word occurs, so in spelling, one who can interpret the context should have no difficulty in spelling the words correctly. Progress in the art will very much depend upon your method of teaching, for the uptake of the child can be increased and strengthened by careful discipline. Little or no dependence should be placed on the possible recurrence of a word to insure familiarity with it. If the children are accustomed to home lessons, on the night before the work is to be tested you may supply them with a list of such words as you may reasonably expect them to master at home. At the same time endeavour to convince them of the value of the slate in the preparation of the task; for it is undoubtedly the case that the writing of a word a few times is a far quicker and more effective way of impressing it on the mind than the spelling of it orally or mentally ever so many times, after bestowing upon it but a single cursory glance.

Oral Spelling.

The pupil's knowledge of what he has learned may be tested by asking the spelling of a few words taken orally after the reading lesson. There is a certain amount of "go" and interest attaching to this exercise which forms an agreeable change from the antecedent strain of the reading lesson; but as a test of ability to spell it is not for a moment to be compared with the regular searching dictation exercise.

Summary of the Teacher's Function.

In short, then, you see that your chief aim will be to instruct and guide, as well as to show the pupils those words upon which special care and attention must be bestowed. It is your function by your teaching to get these words impressed upon the memory as speedily and indelibly as possible without putting any detrimental or disagreeable strain upon the child. When you are satisfied that you have taught, and that your pupils have made an effort to learn the lesson, it will be time to test the value of your instruction and the amount of their knowledge by requiring them to write either on slates or paper the passage which you will then proceed to dictate.

DICTATION.

Introductory Note.—Dictation is essentially a test of the value of your teaching as well as of the pupils' preparation. There is so much scope for guessing and self-correction in the oral spelling examination that the writing of words is preferable in every way, and should never be omitted from the school curriculum even for a day. In the lower classes the written exercise should be performed on slates having suitable double rulings on one side. Nor should the higher ones be above writing to dictation. They should, in fact, write much on slates; but an occasional test on paper or exercise-books suitably but *not excessively* ruled must never be omitted. It is a serious mistake to give up dictation in the advanced classes, because accurate spelling is as much to be desiderated then as ever, and the increase in vocabulary, the result of more extensive reading,

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naturally necessitates a greater and wider familiarity with the spelling of words.

(*a*) **The Position of the Class.** — Humanity between the cradle and the grave is liable to err, and children especially are prone to help themselves when they can. The tempting morsel which the more mature and enlightened mind can pass by, child nature cannot resist. No matter how trustworthy you think your pupils, eyes are so subtle and uncontrollable and ears are so open and voracious that you cannot afford to let the children stand side by side, or even sit dangerously near one another, while writing dictation. If you cannot set them singly and at suitable distances apart, let them stand for a slate test in semicircular form (always the best acoustically) in pairs and face to face. Although this arrangement, when the class is not too small, is the best, and the straight line, though often necessary, not altogether unobjectionable for practical purposes, the nature of the schoolroom and its furniture will generally determine what position and order you should adopt. When the pupils stand facing each other, the possibility of one seeing what his neighbour writes is thus practically obviated; but the child is not by any means placed at a disadvantage, or thereby precluded from hearing the words dictated. Slates should be well held up, so that copying may be almost impossible. If the work is to be done on paper, the pupils should sit at desks precisely as they do when writing on copies, each one having his head slightly inclined to the right. If this position be rigidly maintained throughout the exercise, even though the pupils are in close proximity to one another, there will be little risk or chance of copying.

(*b*) **Position of the Dictator.**—Before the dictation proceeds, let the room be as still as possible, and let nothing be going on to which the children are not accustomed. If the class be in circular form, the dictator should stand in the centre of the circle. If the pupils are at desks, he should take up his position at the end of the room, to the left of the pupils. For various reasons standing behind the class is often beneficial acoustically. That the dictator should stand at the end or even at the back of his class, positions which will in a measure debar the pupils from seeing him, will to some appear at once unnatural and unreasonable. Still, experience has proved that these positions enable the pupils to hear best. Further, in a well-disciplined school the children will grasp the words dictated by merely looking at the paper or slate before them and listening without shifting their bodies or heads fully better than if they all started up and stared in the dictator's face. Such a mode of procedure has a distracting and unsettling influence. It is also apt to result in carelessness, a tendency to glance at a neighbour's paper, and an irregular and slovenly style of writing. Under the former discipline the possibility of copying, the risk of carelessness and consequent misspelling, are reduced to a minimum, and the evenness and uniform character of the penmanship are sustained. However unnatural the above *régime* may seem, persistent practice will prove its utility.

The Passage to be specified.

(*c*) **The Dictation Conducted.**—The passage being selected, in the first place go in front of the class, and while every eye is bent upon you, read the whole of it slowly, deliberately, and distinctly. It will be well on every occasion, and especially with advanced classes, to intimate at the beginning the name and nature of the lesson from which the piece is selected. This is all the more necessary if the scholars have not read the passage beforehand. After the reading of it, take your position, and give out one, two, three, or as many words as the status and general level of intelligence of the class will determine. In the chapter on writing it is advocated that there should be a gradual increase in the pace of the writing from the lowest class to the highest. Thus while those in an intermediate class write about as fast as on a copy-book, the pupils in the highest should show a free, easy, but yet regular, running style of caligraphy. This gradation in speed has but to be insisted upon to be attained. Again, all the pupils in the class should write at the same rate. Unless there be some physical defect or deformity, the child should keep pace with his class-fellows. Where all the circumstances are normal, there is no excuse for one's falling in arrear in his writing. Make clear beforehand by means of the blackboard the pace at which you expect the class to write; then when you dictate keep your eye upon the writing of the pupil nearest you, and when he has finished (the whole class should be done at the same time) give out the next piece. One writing at a reasonable speed will thus be your guide. It is most objectionable and quite unnecessary for each pupil to shout out the whole phrase before or the last word after writing, and the elevation of his right hand after he is done is equally unpardonable. To drop the pen and fold arms at the end of each phrase is also a mistake. All these feints at methodical training are mere superficial ostentation, as unbecoming as they are unprofitable. When a pupil shows a tendency to fall behind the others, the disgrace attaching to his dilatoriness should be inducement for him to exert himself to keep the proper pace, of which the teacher, not the pupil, must be the judge. Dictation is distinctly a silent exercise, one demanding dogged perseverance and careful attention to what is said and written. Don't allow a child to write while you are dictating. That is bad. The two alternate stages of *listening* and *writing* should be sedulously observed. A steady and fixed posture of the body; the head slightly inclined to catch the full words or phrase every time you speak; the entire absence of all startling weather-cock movements of the whole system; steady, uniform pace; perfect stillness; no muttering of the spellings, no moving of the lips as the pupil writes—are all characteristics of proper and necessary behaviour during the healthy performance of the exercise. If you tolerate whispering in the class, you are very apt to be misled and deceived by a child who can scarcely spell at all offering you an exercise tolerably correct.

Things to be avoided.

Silence imperative.

Things to be observed.

On Pronunciation of Words.—A good dictator will have no difficulty in training his pupils to distinguish between such similarly-sounded words as "of" and "off," "past" and "passed," "shawl" and "shall," "ought" and "oat," etc., even although the context should be sufficiently suggestive of the proper word.

But there is a method of dictating which must be studiously avoided. It is that one by means of which the teacher distorts and even mispronounces the word, generally a long one, so that it reaches the pupils' ears in a series of well-defined syllables instead of a compact whole, sounded as in ordinary speech. An example will illustrate the error: "This collar was indispensable," is read, "This col-lar was in-dis-pen-sable." Thus the phrase is virtually spelt for the class, the stress laid upon the sounding of the catch-vowels making mistakes all but impossible. This mode of dictating is quite misleading to the teacher, and the pupils are trained to a habit both injurious and intolerable. The words should be uttered naturally, only a trifle more precisely than you would wish to hear them spoken.

Bad Dictating.

There is no limit to the number of words to be given out at a time, but one or two will be sufficient for very young children, while for older ones the words or phrases dictated might be such as occur between rhetorical pauses. Each phrase should form, as it were, an integral unit—something which the mind can grasp and retain till it is committed to paper. Observe that a phrase or clause embodying a definite idea is much more easily carried in the memory than a word or two expressive of nothing in particular. You will understand the nature of the portions suitable for an intermediate or junior class from the following specimen, which is divided into groups, each of which, though short, forms a unit which a child's mind can carry:—"At twilight | we were walking | in the garden | and meditating | on the splendour | of the sunset, | when a little bird, | at the edge | of the wood | behind us, | burst forth | in glorious song. | It was a nightingale." Dictate the phrase once only; and if you are not heard at every point, you must either cultivate more distinct articulation yourself, or compel the pupils to give closer attention to your diction. A good dictator always handles his class well; a bad one invariably reduces the pupils' chance of success.

The Number of Words to be dictated.

Specimen.

Dictate once.

Punctuation.

Children should be early accustomed to put in the ordinary marks of punctuation as the teacher names them. More advanced ones will punctuate for themselves, the periods alone being supplied.

Dividing the Word.

When the end of a line is approached, the young writer is apt to cram in a word, superscribe it, or fill in as much of it as the space will hold, and then transport the remainder, whatever it may be, to the other side of the page. At first, when the remaining space is not sufficient to contain it, the whole word should be written in its entirety on the next line, and not divided. By-and-by it should be pointed out that the word may be divided into syllables, and that however many of these remain after filling the line, it is desirable that those carried to the other side should begin with a consonant.

Writing as on a Copy.

When finished, the exercise should present much the same appearance as a page of the copy-book. Slovenly habits tolerated during the dictation will manifest themselves on the copy. What you advocate in the one approve of in the other, and what you condemn in the one find fault with in the other. If you view corrections in the light of mistakes, the pupils will gradually become more careful to shun them.

(*d*) **After the Dictation.**—As soon as the exercise is completed, allow sufficient time in which to dry it; then bid the pupils stand. Pens should be laid on the desk. These steps insure that no subsequent aid is available, and no desirable corrections possible. When the work is done on slates, it will save much time if you ask the scholars to exchange slates and underline errors while you spell off the words in the passage. Exercises written on paper should be collected, mistakes marked and summed up, and the books again handed to the pupils, that they may see and understand the nature of their shortcomings, and practise the correction of them. Till the errors are marked, the pupils may be set to transcribe a passage or a selection of difficult words from the reading lesson. After the books are returned, every misspelt word should be

Mistakes to be rewritten.

written five or six times at the foot of the page, while attention should be called by means of the board to those mistakes which occur most frequently throughout the exercises. It is a good plan to keep a list of those words which are most apt to be misspelt, and to have a specified time set apart every week for a general revisal of them. This may be adopted in the case of any class in school. A dozen or so of these words copied a few times might profitably be accepted as an occasional substitute for the dictation exercise. But while a misspelt word may be explained to the pupils collectively, individual repeated transcriptions of it are necessary, that observation may aid the memory. Gross carelessness will call for a suitable measure of censure, but the punishment should not be of a nature to injure the progress in spelling. You will, however, find that the need of it will be lessened in inverse proportion to your ability as a teacher, not as an examiner. Sympathize with those who have weak and vacillating memories, and who you know are anxious to do well. You will find that a few words of kindly encouragement and timely aid will avail far more than an ebullition of temper, harsh treatment, or acrimonious snarling.

Lists of Words to be kept.

Sympathy necessary.

Transcription.—Transcription is an exercise specially applicable to the infants and junior section of the school, and should be practised daily. The main thing to be attended to in this lesson is that the pupils do not attempt to carry mentally too much at a time, so as to bring the spelling to grief. Bid them look well at the spelling of each word before attempting to write it.

Orthography.—Orthography is in a way a test of ability to spell. It is, however, specially suited for the older classes, and should never be attempted in the younger ones. The exercise is an exceedingly interesting one. The secret of successful transcription lies in reading the misspelt phrase rapidly, allowing the eye to dwell as short as possible on individual words, and then at once writing it correctly. Yet the value of orthography as a real test of skill in spelling has never been satisfactorily established, and the opinion of the most reliable authorities is that it is more apt to propagate and confirm errors than to eradicate them.

SPELLING OF THE SENIOR CLASSES.

It has been already stated that spelling should not be neglected in the upper standards. It is quite a mistake to suppose that because senior pupils are expected to perform specimens of composition, the spelling lesson is now no longer necessary. There is practically no limit to the vocabulary which advanced classes may acquire, and the constant appearance of new words from day to day should supply abundant matter for fresh ventures and scope in spelling. A systematic and rigorous course of dictation lessons should be judiciously interlarded with the composition ones, which will be largely benefited thereby. When the pupil is writing an essay or a story, words will occur which no amount of circumlocution can express, so that not only will his vocabulary require to be varied and extensive, but his ability to spell the words occurring in what he writes will have to be pretty certain. The more advanced pupils should therefore undergo a course of training in spelling, and it will have to be gone about as systematically as in the case of the junior ones. The aid of the teacher is particularly necessary to indicate the new words which will require most attention, and which will cause most annoyance if overlooked. Various new methods will also have to be adopted to insure that the words are speedily and permanently remembered.

Dictation necessary.

In most reading books there are lists of words either attached to each lesson or collected and arranged in columnar form at the end. These assume their most formidable appearance in the more advanced books, in which their length and difficulty increase. They may serve a specific purpose, and may profit the child, but one can hardly contemplate them without calling to mind with a shudder the awful ordeal associated with the spelling book of the past. The teacher alone kept it. It seemed as

List of Words for Spelling.

The Spelling Book of old.

sacred as the volume that lay beside it. From cover to cover it bristled with "jaw-breakers" which the child was never permitted to behold. Its sacredness would have been violated, its function gone, had even a furtive glance been cast upon the page. With awe-inspiring portent the teacher cautiously opened it, and laid it so that no eyes save his own could see it. Then the reign of terror began. To the fortunate child the exercise was agreeable and invigorating; but to him whom the gods forsook there was nothing but gall and bitterness of heart and copious tears, the result of aching extremities. During the lesson the irate pedagogue ran through a gamut and a half of the most scathing and heart-cutting expressions, in ardent denunciation of the helpless child's stupidity. The book was testily closed, and with a meaning pat tossed upon the inaccessible shelf, or put under lock and key, only to be opened when the "boding tremblers" came forward next day for a repetition of the same gruesome ordeal. Such was the nature of the spelling lesson which too frequently obtained in "the good old days." It is worth knowing, to enable one to view in as favourable a light as possible the more rational and educative methods of modern times.

When children are set to commit to memory the spelling of lists of detached and independent words, they may, after a considerable amount of perseverance, succeed; but somehow or other the impression is but temporary and evanescent, and only lasts at most so long as the child attends school. It is infinitely better that all new words should be mastered through observation of them, coupled with a sound interpretation of the context. Besides, the latter is the more fascinating exercise of the two.

Words commonly misspelt.

There are certain words, which are of daily occurrence, and whose spelling should have been firmly impressed during the period of school attendance; but somehow the spelling of them is constantly causing vexation. "Separate" is often spelt as "seperate;" "judgment" with an *e* after *g;* "management" without the *e* after *g;* "fulness" and "dulness" as "fullness" and "dullness;"

"stillness" with one *l;* "preceding" as "preceeding," and so on. These are a few specimens of many that might be mentioned. A most erudite scholar has been known never to trust himself to spell "sheriff" correctly without first consulting a dictionary. The correct spelling of "separate" may be impressed by writing it boldly and alone on the board. Draw a perpendicular line between "se" and "parate," and tell the class that "se" means "apart," which write. Then call special attention to the "parate" portion, and by dwelling upon the *a* in "par," endeavour to fix the spelling on the mind. To some children the correct spelling of the word may be made the permanent property of the mind if it is merely pointed out that in it there occur two *a*'s and two *e*'s. Underline them as you refer to them. Then write the word "management," and in like manner point to the presence of two *a*'s and two *e*'s in it. It has just to be explained that in the words "dulness" and "fulness" there is but one *l* before "ness." Call attention to the same peculiarities occurring in the compound words, such as "cheerfulness," "playfulness," etc., thus making it clear that the rule is a general one. Again, other words ending in *l* or *ll* have "ness" added to them without undergoing any change. "Proceeding" and "preceding" might be written side by side, and the fact indicated that in each word there occur two *e*'s before the *d*. Write "sheriff" in two detached syllables, and when it is made plain that these are "she" and "riff," a mistake will hardly occur in the subsequent spelling of it. These examples are perhaps sufficient to convey some idea of a method of dealing with spelling in the more advanced classes, and one which may often be found useful in more elementary ones. It will be well to note the important part which observation has played in attaining the desired end.

Etymology as an Aid to Spelling.

But you will frequently find it very expedient to explain the spelling of a word, through its etymology, to advanced pupils. Spelling and etymology, in fact, go a long way hand in hand, so while you teach the latter be studious to allude to the former. It is difficult to tell when a casual but timely hint may make a deep and lasting impression. By referring to the fact that "separate" is derived from *se*, meaning "apart," and *paro*, "I prepare," you will with little difficulty establish the identity of "parate" with *paro*, in both of which the *a* is conspicuous. But the subject, in its peculiarities and variety of treatment, is practically inexhaustible. Enough has perhaps been said to show that, as a teacher of spelling, you have a delicate and necessary function to perform.

The Eye a special Aid to Memory.

Again it is urged that observation is a most important factor in acquiring familiarity with the correct forms of words, just as a good knowledge of their meanings is conducive to freedom and accuracy in their usage. There will be no harm in pointing out that dubiety regarding the spelling of a word may sometimes be removed by writing or printing it, in the hope that the mind may be enabled to judge of its correctness through the aid of the eye. This important function of the eye is apt to be impaired when the words, as in the orthography lesson, are written offensively spelt in magnified characters on the board.

The Length of a senior Spelling Lesson.

If your pupils have been accustomed to a systematic course of training in spelling, it will not be unreasonable to expect them to be able at any time to spell all the words in the portion prescribed as the reading lesson for the day. In fact, it is very desirable that the two lessons should as nearly as possible coincide in length, because more interest attaches to the new words in what one is actually reading than to those occurring in matter already stale. Still you will have to exercise your own discretion in cases where the words are both numerous and abnormally difficult. Although it is an interesting and not unprofitable exercise to take orally a few rounds of spelling in the higher classes, because the effect is healthy and peculiarly stimulating in many ways, you will find no form of test so thorough in its application as the dictation one, which should be conducted precisely on the lines advocated in the junior classes.

Transcription.

Transcription at this stage is practically useless. It is injurious as a punishment and profitless educationally. When time is short, instead of dictating the whole passage, let the pupils write to your dictation what you consider the most difficult and testing words in the portion selected.

A Pupil may be taught to dictate.

Any smart pupil may be chosen dictator, and although he may not be allowed to give out words of his own choice, there is no reason why he should not be taught to dictate a passage about as well as yourself; but observe, you must teach him how to do it. As he dictates, he may be asked to write the words on his own slate, that he may lose nothing by virtue of his office. His own effort will be some guide to the pace at which his class-fellows should write. The objection that such an arrangement prevents him from keeping a watchful eye upon the others is overcome when it is pointed out that the task should invariably be executed in your presence and under your own supervision. Under no other circumstances can that honesty so valuable and desirable in dictation be secured.

CHAPTER IV.

I.—COMPOSITION.

PRELIMINARY CONSIDERATIONS.

JUST as language is "the expression of thought," so composition may be conveniently defined as "thoughts expressed in words either spoken or written." Before speaking of *composition*, you will do well to give your pupils some idea of the nature of the exercise to which this name is attached. The formation of sentences on slates cannot be begun too early, and the making of them orally forms an agreeable and interesting task for children who are not yet able to write what they think. It is through sentences that ideas even in infancy are expressed. A nice little sentence is a graceful utterance of a child, and invariably commends itself to sympathy in spite of any serious flaw in grammar, which should be promptly but tenderly corrected. Pupils accustomed to express themselves in sentences find great facility and pleasure when they come to deal with composition in its more exacting written form.

Composition is a branch demanding much study, mental activity, concentration of thought, and, in its highest aspect, some grammatical knowledge of the words used. All these elements enter into the exercise. The effect is also heightened by correct spelling and neat and regular penmanship. Children can hardly be said to compose mechanically, though there may frequently be much of a mechanical ring about what they write. Careful, patient, and methodical training can alone achieve good results. In a class in which the subject is daily examined but never taught, a pupil may be found who offers a wonderfully accurate rendering of a passage; while his class-fellows tender a mass of words and confused ideas, conveying scarcely a trace of the original narrative. Even in this instance there is evidence that the subject is not taught, for the success of one child is not to be attributed to any degree of special instruction from the teacher. He performs the task satisfactorily because he has in him the intuitively acquired knack of composing. In other words, he is successful because, being a genius, he has a "turn for composing," probably acquired through much spontaneous reading.

Before proceeding to teach the subject, it will be necessary that you consider what your function is as teacher, and what your pupils have to do as learners. These considerations will determine to what extent their specimens of composition are to be the result of a combination of efforts. The subsequent treatment of the subject will make these two points plain.

Grammar to be known.

It is hardly possible to dissociate some knowledge of grammar from composition. The one is in a measure bound up in the other, and the two are mutually subservient. The analytical phase of grammar will be of special aid in enabling children to make sentences grammatically correct; hence it is very desirable that analysis and composition should be taught *pari passu.* A knowledge of the names of the parts of speech will not materially benefit the composition, but it cannot be denied that an acquaintance with the relations between subject, predicate, and object in a sentence, as a good solid foundation, will be indispensable. The fact that this branch requires careful and methodical teaching, will be best brought out by viewing it in its two antithetical aspects—namely, "Composition non-taught," and "Composition taught."

COMPOSITION NON-TAUGHT.

The pupils to whom the making of a sentence in any form has hitherto been practically a mystery emerge, in this state of darkness, into the glorious arena of a more advanced class. In the course of a day or two they are given to understand that composition is a thing they must now proceed to learn. The teacher produces a book in very attractive covers, and at once proceeds to read a story, in all likelihood one they never heard before, but which is, nevertheless, sufficiently engrossing to sustain their fullest attention. To this point they are fortunate. Having finished the reading of it, he sends them to seats, accompanied with injunctions to write the story on slates; and lest there be a tendency to trifle on the part of some, he lets it be known that their efforts will be looked for in a remarkably short time. For encouragement, he adds as a parting word that they must do the work as well as possible. To escape that corporal chastisement which invariably follows every breach of orders, no matter how absurd or unreasonable, the pupils apply themselves to the task. The whole courage of the class, all the natural desire and ability available, and every aspect of mental activity are thrown into the effort, and the result is a heap of slates besmeared with confused groups of words, neither sentences nor story, neither correct spelling nor good grammar. Some more fertile in their imaginations than others contrive to fill a side of the slate with nonsense; others, in their urgency and timidity, also manage to write some good nonsense; while a good many have sat the while utterly unable to conjure up anything worth attempting to put on slates. These last find bitter consolation in the contemplation of their class-fellows, whom they see so diligently engrossed in the task. As a *dernier ressort*, they copy where possible, in order to escape punishment. In their calmer moments they call to mind that the story was remarkably interesting, and that the exercise promised to be an exceedingly enjoyable one. But they are conscious that they have miserably failed; and viewing with growing alarm the ominous glances of the teacher, they have, in a majority of cases, heroically resigned themselves to the inevitable. Upon this follows the pedagogue's scrutiny of the work. At first he is rather disappointed, and candidly expresses his surprise that pupils who have read so much, been so long at school, yea, and are *so old*, should not compose better. Mistakes—a heavy crop—he marks and sums up. Then follows a brisk round of punishment, either inflicted on the spot, or postponed till the play-hour, to double the effect. This is how he manages to have his revenge. Comments upon the nature of the mistakes, if ever made, assume this form :—"What is 'who' the nominative to?" (The child wonders what a nominative is. It was not mentioned in the story; of this he is certain.) "This sentence is just nonsense." (He fails to see this, but feigns concern.) "That's not a sentence: how should a sentence end?" (He might as well ask this of the lofty autocrat of the moon.) "You have not finished your story, sir." (He knows that.) "You are the stupidest boy I have ever come across, and mind I have *taught* a good many." (Though somewhat overawed, he is sceptical of the remark, but does not contradict it.) "You will never write composition." (He is well-nigh convinced of this, but does not express his conviction.) These are the voluble, outspoken remarks with which this exponent of education —this veritable Squeers—thinks fit to interlard his survey of the pupils' efforts. Coupled with the punishment which follows, the work does not begin to assume a very encouraging aspect. No word of explanation or instruction is ever given. He never for a moment imagines that in trilling his daily song, the burden of which is, "You must do it; you shall do it," he is not teaching the children confided to his charge by trustful parents. He expects them to compose sentences spontaneously, just as a lamb proceeds to suck its dam instinctively shortly after it is born. The pupils become thoroughly disgusted, and shudder to think of their *debût* in what at first promised to be rather an enjoyable exercise. So much for the discipline which obtains where the subject is non-taught. It will now be convenient to consider a method of teaching this all-important branch, which should begin to assume its more finished form as the higher classes are approached.

COMPOSITION TAUGHT.

A Board necessary.

Like most other subjects, composition should be taught by the aid of the blackboard. The value of teaching through the eye cannot be too strongly urged. Without a board intelligent training in sentence-making is practically impossible. This being the case, it is most essential that the scholars be arranged so as to have a good view of the board, and be perfectly at ease to follow your explanations, which will be particularly plain, and even copious, in the first instance. Tell them that you are about to read a nice story, and that after so doing you are to tell or write it in sentences of your own on the board. Assure them, also, that they will soon be able to give you much help in the task. The fact that the very nature of the exercise renders it agreeable, and such as scholars take the deepest interest in, should be sufficient stimulus to strict attention on their part and explicit teaching on yours. As you read the story, the pupils should, from your style and knowledge of it, be enabled to follow and comprehend the incidents. Observe, it is important that you should have read the story privately beforehand. Tell them, in the first place, what the story is about, to sustain expectancy and interest; then, while all are attentive, standing in front of the class, read it slowly, deliberately, and clearly, observing a natural accent. For the first six attempts, at least, the story should be a simple one, not too long, easily grasped, and, in particular, one with which the scholars *are already quite familiar*. Simplicity and attractiveness are preferable to brevity. It is undesirable that direct speech should occur in the preliminary exercises. A familiar anecdote, such as "The Dog and the Shadow," "The Hare and the Tortoise," or one of Æsop's fables, will be very suitable with which to open the subject. By your beginning with familiar stories, the mental strain required to follow the narrative, so as to understand and remember it, will be particularly minimised, and the mind will thus be almost wholly engrossed in noting the sequence of words, the succession of data, and the style and general structure of the sentences. Although the story is quite well known already, the fact that you are to read or tell it, and that the pupils are conscious that it has to be reproduced, will amply sustain interest in it.

A known Story to be read.

Read the anecdote at least twice, and then make clear to the class that you are about to write it on the board in sentences

The first Steps in Teaching.

of your own; that, instead of telling it in words, you are to write the words; that this will be slower work, but the words used will be just the same. Now lay aside the book, and while every eye is strictly observant, proceed to make a short, simple, initiatory sentence of five or six words. First say the sentence to the class, then write it. The saying of the sentence and subsequent writing of it will enable them to establish in their minds the identity of the sentence spoken with the sentence written. After the first statement, place a full stop. Then re-read it aloud to show its connection with what follows; give out the next sentence, write it, and continue this order of procedure till the end of the story is reached. Periods only should be noted at first, because the sentences are simple, and these will consequently be sufficient. The exercise, when finished, will appear as a series of short, simple sentences couched in the simplest form of language, yet preserving unbroken the thread of the anecdote from beginning to end. Thus far you have done all the work, the pupils have merely observed you do it. Yet this is as it ought to be. The case is precisely analogous to that of the apprentice who has to stand by and look on while the work is being done. Before he can attempt it himself he has to observe, and subject himself to instruction. It is wearisome, unnatural, and unsatisfactory when one has to arrive at the correct manipulation of any task through the instructor's persistent correction of blunders. Repeated correction of any form of exercise, while it may ultimately end in tolerable accuracy, has at the time a singularly depressing effect upon the learner. Your having introduced the exercise in this quiet manner will have lent encouragement and gratification to the pupils. You have shown them what they are expected to do, and you have at the same time induced them to put forth effort from the fact that you have told the story in words with which they are perfectly familiar. The nature of the task has appeared to them in all its simplicity, and after such a promising commencement you may safely depend upon it that practice will ultimately lead to perfection. The extreme simplicity of the preliminary steps should at once remove everything of a forbidding character. Now that the pupils have got some idea of the nature of the work required of them, that full confidence and a measure of self-reliance may be inspired, bid them copy on slates verbatim what has been written on the board. The precise idea of the sentence, its initiatory capital letter, and terminal period—points demanding strict attention at present—will thus begin to take root in the mind. If the subject is taught near the close of the attendance, it will be profitable to let the pupils carry home their slates with the writing upon them, if circumstances permit, that they may at leisure digest the nature of the task, grasp its simplicity, and clearly realize that the words written are just those which would have been employed had the story been merely told.

Pupils to copy the Story.

Next day, the same arrangement of the class being observed, read twice another short and attractive story, and then before he has time to meditate upon the gravity of the task, ask in a guileless sort of way a likely pupil to make a sentence suitable for a commencement. Hesitancy to comply may be overcome by coaxing and encouragement; but if the child be still shy to essay the first step, you must at once appeal for help to another and more likely one. Next time he will probably respond to your request. Although the sentence volunteered be a bad one, write it, and proceed to indicate tenderly its objectionable features. Then rewrite it in correct form. Should such a phrase as, "The man's dog," be offered as a sentence, you will call attention to the fact that it possesses only one of the possible elements of a sentence, namely, a thing spoken about, and that it lacks predication—something said about the dog. Pupils that have been grounded in the junior classes in making sentences embodying suggested subjects and predicates will at once understand that as something—namely, a dog—has been named, but nothing said about it, the sentence is incomplete. The same child will probably be able to suggest, "The man's dog bit the cat." Commend this venture, dwell for a little on the completeness of the statement, and place the full stop after it. The

Pupils begin to make Sentences.

next pupil challenged will, with less dubiety and trepidation, essay the next sentence in the groove of the narrative; and by a continuance of this ordeal you will gradually and effectively entice the pupils into making sentences for themselves. By steadily enlisting their aid, and keeping the matter attractively before them, you will soon be enabled to leave them to do the work alone. Thus they may be sympathizingly trained, until they become cognizant of what is required of them. Repeated effort will breed familiarity with the work, and will eventually implant a feeling of self-reliance and hopeful desire. It will also be encouraging to show by example on the board that the same story may be told in different sentences equally good, and that it is not at all necessary that there should be but one way of telling it. Of this they will be more fully convinced when you read to them the versions on the slates of different pupils.

The Story read and impressed.

There are two ways in which the story may be put before the class. It may be read, or it may be told. When you read a story which the pupils possibly never heard before, bear in mind that their comprehension of it will almost entirely depend upon your reading, and that what is badly read can hardly be well reproduced. If you have read it well, any child should be perfectly able and willing to rehearse orally the main facts of the narrative in words at once simple and sufficient. You will add encouragement if you explain that one telling the story is supposed to be doing so to his class-fellows in the playground. The one who repeats the story orally will be yet further strengthened for the ordeal if you allow him to turn his face to the class and his back towards you. Those who tell the story best think most about it, and least about the teacher. Children who are able to repeat the story orally, and who have a thorough grasp of the nature of simple sentences, may safely be set to write exercises on slates independently of your guidance. The pupils who rehearse the anecdote should be selected promiscuously, not consecutively. The chance of his being the narrator for the day will insure that each one gives the closest attention to the reading of the story. Thus also will be exercised the

Pupils tell the Story.

essential habit of concentration and close attention to what is said and done. As it is frequently the opening sentence that occasions most trouble, the subsequent ones being comparatively easy, you will be at pains to detect cases where this weakness is retarding progress, and where necessary it will be well to supply the introductory sentence yourself. After the preliminary steps and obstacles have been surmounted, and the novelty of the task has worn off, you need not suddenly dispense with blackboard instruction, for the sentences to be dealt with are of increasing comprehensiveness, endless variety, and constant growth. The burden you impose upon the pupils should be steadily increasing, as your own aid is decreasing. While they are still in the first throes of the subject, vary the above method somewhat by asking them to write simultaneously on slates each sentence immediately after you have exhibited it on the board, so that by the time the story is exhausted each one will have a copy of it in his hands.

The Story told easier to grasp than the Story read.

But while it is most essential that the order should be varied by occasionally telling the story instead of reading it, you must bear in mind that it is dangerous to indulge in this practice too freely. It has its disadvantages as well as its advantages. A child that can grasp a story read will much more readily understand a story told. This arises from the fact that in daily life he is more accustomed to listen to what is said than to what is read. He is already quite accustomed to the one, while he is now being trained to the interpretation of the other, expressed in form and words with which he is not quite familiar.

The Original Words to be avoided.

Some children are so clever in the uptake, and are possessed of memories so vigorous and powerful, that an anecdote read once or twice in their hearing can be reproduced verbatim on slates immediately after. Such an accomplishment is not to be encouraged. You must insist upon it that the story has to be told in their own phraseology, and not in the words of the book. A little firmness, combined with a judicious modicum of censure and disapproval, will remedy the trait, which should be accepted as savouring more of indolence and inability than an exhibition of cleverness.

When you tell the story, vary your phraseology each time, so that the pupils may be furnished with at least two renderings of the narrative, identical in facts and ideas, but different in diction. This will tend to obviate any tendency to write the story in your words, and will at the same time encourage the pupils to do it in their own way.

Story to be told in different Ways.

While a story such as "The Beggar Man" or "Lucy Gray" read in the poetical form is more difficult to apprehend than a prose one, it forms a valuable test of a child's ability to construct sentences, because it makes it impossible for him to write with a good grace the sentence in poetical idiom, so that, however strong the temptation, he is strictly debarred by his consciousness of liability to instant detection.

Story in Poetry.

The valuable and customary system of sentence-making to which young children are subjected should hardly be necessary at this stage. Although its merits are numerous, its adoption at present should be practically uncalled for. The training referred to is that which supplies a list of nouns or verbs, as the case may be, with which as parts the pupils are expected to construct simple sentences. For instance "cow" is given, and the child writes or says, "The cow gives milk." Again "eats" is given, and he writes, "The horse eats grass." It is obvious that the field for statement is wide; but the difficulty of hitting upon a definite idea often vexes children, so that the system, while admirable in conception and discipline, is not altogether without some defects. Still, as a rule, children delight in the exercise, which should be practically over by the time they are asked to reproduce a given story. As the anecdote furnishes the ideas, it may safely be said that in a measure the task is thereby materially simplified.

Early Training in Sentence-making.

The maxim, "that it is a good thing to see ourselves as others see us," is very applicable to school routine. The revision of the slate exercises of the pupils next demands consideration. After they have had considerable practice in story-writing, they may be allowed, after exchanging slates, to mark errors in spelling, grammar, punctuation, or even the thread of the narrative, on one another's slates. Anything that appears to be erroneous should be *underlined* in your presence. The prevalence of a mistake is sufficient proof of its importance. Errors of a general nature and some particular ones should be transported *en masse* to the board, and there commented upon like the prevailing mistakes in any other branch of study. All should see them and make note of their importance. The better the subject is taught, the fewer errors of any kind will become, and the less time their correction will occupy. You will also find it exceedingly useful occasionally to copy on the board a badly-executed specimen of composition in which grammatical mistakes, bad punctuation, and, it may be, slovenly writing are the prevailing errors, but in which slips in spelling may not be so frequent. The pupils should be asked to correct and improve it, and their class-fellow will be very dull indeed if he does not exert himself to supply a better specimen next time. By encouraging the scholars to aid in the detection and correction of errors, you will be educating and instructing them in the true sense of the terms. Successful efforts you will freely commend, while at the same time you will exercise caution in throwing cold water upon feeble efforts which you are convinced are the best of which the pupil is capable. Badly-taught pupils, when left to themselves, are very apt to make the sentences too long. They open with one lengthy mixture of words, place periods indiscriminately, and seldom concern themselves about commas or other marks of punctuation. The general tone of each sentence is a tedious jumble of ideas. You feel when reading the exercise that the pupil knew the facts, but lacked ability to express his knowledge in proper sentences. A story can always be told in simple sentences, and there is no reason why any other form of expression should be adopted by a scholar at the initial stage of his learning.

Revision of the Exercises.

Correction of Mistakes.

A common Mistake.

SUBORDINATE CLAUSES INTRODUCED.

As the pupil's knowledge of grammar and analysis becomes more extensive, and after he has proved himself an adept at composing in simple sentences through much practice, he may be introduced to the writing of sentences at once longer and more intricate. If he can write simple sentences well, it will be an easy matter to train him to throw in subordinate clauses. The subordinate noun clause he is almost compelled to write first, because it forces itself upon him at every step. An example will make this plain. The sentence, "He knew that he would fall over the rock," appears an easy enough one to write, yet no two simple sentences will so tersely or naturally express the same idea. The pupil is forced, as it were, to write it in its complex form to which he is accustomed when speaking, and which alone impresses him with the perfection of the statement. Subordinate adverbial and adjectival clauses, on the other hand, can be manufactured by transforming adjacent simple sentences, thereby rendering the same idea more elegantly, though perhaps by no means more explicitly or intelligibly. To illustrate this process of transformation, write on the board the two simple sentences occurring in the story—namely, "The boy saw the man." "The man had stolen his cap." Draw the chalk through the words "the man" in the second sentence, and over them write "who." Then read the whole sentence in its complex aspect—or better still, write it first and then read it: "The boy saw the man, who had stolen his cap." Explain that as the whole is turned into one sentence having its period after "cap," the full stop which was after "man" may now be converted into a comma, to show where the principal clause ends and the subordinate begins. The persistence of pupils in opening a story thus, "The man who came to the city," and putting a period after "city," is remarkable. The error should be explained on the board. Point out that they are attempting to put two simple sentences into a complex one, and that only one of the simple ones has been embodied in the above incomplete statement. The subordinate adverbial

The adjectival Clause.

clause is not difficult to introduce. Write these two simple sentences: "He came to school in the morning." "He had washed his face and hands." Tell the class that, instead of writing the two as separate sentences, you are to join them by putting in the word "after," which is called a conjunctive adverb. Write the whole sentence as complex, and point out that the idea expressed is still the same, while it sounds neater and more natural, and that a comma is placed after "morning" to show where one clause ends and the other begins. It is a capital exercise, after the above explanations have been given and understood, to write an anecdote on the board in a series of simple sentences, and set the pupils to rewrite it, reconstructing the sentences, and where possible converting two or more simple ones into a complex sentence with subordinate clauses. The precise nature and value of the task will thus grow upon them, and in subsequent efforts they will have an intelligent grammatical knowledge of the sentences they are making. It is not reasonable to suppose that the use of colons and semicolons should be explained till perfect familiarity with the value of the comma is secured, but marks of exclamation and interrogation can easily be illustrated and understood. The making of long sentences requires some experience to do it well, and should only be encouraged after the pupils have had ample training in the construction of short ones. To direct narration they will be early introduced, so it will be well to teach them the use of inverted commas as soon as possible.

The adverbial Clause.

Simple turned into complex Sentences.

INVERTED COMMAS EXPLAINED.

Although there is nothing very difficult connected with the placing of inverted commas, the exercise demands special explanation. Bring the class before the board, and on it illustrate the nature and use of such marks by means of pointed special sentences. Write the sentence, "I will go," and then dwell upon the fact that such a sentence must be said by some one. Below it put, "The man lost his purse," and under this write, "'Alas!' said the man, 'I have lost my purse,'" without placing any inverted commas. Now deal with the second and third sentences. Point to the former and say: "Here you imagine that somebody is telling that the man lost his purse, but in number three the man himself who lost the purse is speaking. When you write the very words the person says himself, you must put what are called inverted commas before them. *Inverted* means turned upside down, and they are so called because the first ones are just commas turned upside down. [Place them about a word or phrase, that the class may become familiar with their position and appearance.] In the former of these sentences no inverted commas are necessary, because some other person says the words; but in the latter there are certain words spoken by the man himself. These must be placed within inverted commas. Let us find them out. He said, 'Alas!' so let us put inverted commas about it and a point of exclamation after it, for it is an interjection. He did not say 'said the man,' so a comma is placed after 'man,' and no inverted commas are put over these words. He did say, 'I have lost my purse,' so this is put in inverted commas, one at the beginning and another at the end. Thus you see that when only one word occurs, and is spoken by the person himself, the commas are put before and after it; but if several words occur, then the commas are placed at the beginning and end of the whole group." This exercise should form a lesson by itself, and your instruction should be followed by drill in punctuation. Familiarity with such markings, whether single or double, will be secured by your writing a number of sentences on the board, direct and indirect ones being indiscriminately mixed up, and drilling the class in punctuation under your guidance and instruction. The sentence which causes most annoyance is of this nature: "He said that they had come, and that they would go no further." After writing it on the board, put under it: "'I have come,' said he, 'and I shall go no further.'" The proximity of the direct sentence will help to emphasize the indirect nature of the other. It is the presence of the word "said" in the former that creates confusion. But with careful explanation and

A confusing Sentence.

ample time for consideration, the difficulty will vanish. You have simply to urge that in the one case the man did not say these very words beginning with "that they had come." In a practical way you could easily establish the truth of this by asking one pupil to tell what another said, when it will be at once apparent that his utterance is not the very words of the original speaker. Such a lesson has to be taught to the class collectively. It is mere waste of time and energy to make explanations to separate individuals unless in extreme cases and for special reasons. After explaining the marks on the board, bid the pupils open reading books at a page where the lesson of a colloquial nature occurs. Let them there, in the abundance of punctuations, justify their occurrence and verify your teaching. This application of the teaching is both interesting and instructive. Traverse the whole lesson with them, and question them freely as you proceed. They should thus acquire a thorough knowledge of the subject, and should have no difficulty in punctuating correctly subsequent exercises of their own composition.

The Teaching is collective.

COMPOSITION ON PAPER.

To commit one's ideas to paper is the true test of ability to compose. While this form of exercise is more severe than the slate one, it is very much more practical, and more in keeping with the usual form in which the child's written ideas will appear in the course of his life. The fact that a sentence once committed to paper cannot be altered or reconstructed without marring its general appearance, will induce you to practise the pupils in writing composition exercises on paper as soon as possible. This phase of the subject has to be introduced gradually. For a time the exercises should be attempted on slates only, and when a tolerable amount of proficiency has been secured, the matter ought to be first written on slates and then carefully copied on paper. The highest mark of skill manifests itself when the child can write the story right off on paper without any preliminary tentative operation on the slate. The task of transcribing from the slate to the exercise-book might be substituted for an ordinary writing lesson; and the penmanship exacted might reasonably be such as you find on the copy-book. Thus the three stages, (1) writing on slates only, (2) transferring from slates to paper, (3) writing on paper only, are clearly defined. Your aim should ever be to get your pupils to act upon the lines of the third and highest. A good deal will depend upon the nature of the narrative, as well as the spirit in which the pupils accept it. The better they know it, the more successful the efforts on paper will be. Before a story can be well reproduced it must be well read and well understood. Writing on paper may be begun at a very early stage, the task being considered more hazardous than difficult. As the anecdote becomes more intricate in ideas and longer in substance, the difficulty of reproducing it in any form will not be greatly increased, because the pupil's familiarity with the exercise is supposed to be of corresponding growth. It will probably assume its most difficult aspect in the earliest stages of the study. But at all times it is to be borne in mind that the more complicated or involved the ideas expressed in the anecdote are the more thoughtfully it will have to be read, and the greater attention the class will be expected to bestow upon it. You can tell pretty accurately by their faces if they are hearing and understanding you. First efforts on paper are sometimes disappointing, because it is some time before the pupil gets into the way of putting in its best form what he means to say. The slate performance affords facility for any number of reconstructions and corrections. This, as an objectionable feature, accustoms the pupil to proceed with less discretion than he probably ought, and its injurious influence he experiences when he essays to write on paper, on which erasures are all but impossible and corrections disagreeably obvious. Most practice should, however, be given to writing on slates, and for once the exercise is performed on paper it should be done a number of times on slates. But in the most advanced class the work should invariably be executed on paper, because then the pupils are supposed to have acquired ability to write on paper as expe-

Three Stages of the Exercise.

ditiously and correctly as on slates. New or uncommon words occurring in the passage should be explained by you either before or after reading it. Names of persons and places should be written on the blackboard. There is nothing to be gained but much to be lost by leaving the scholars to imagine and ultimately chance the spelling of any word which they have never seen, and of which you are certain they must be totally ignorant.

Strange Words.

There is little objectionable in teaching one to shun a word he cannot spell, by substituting for it a suitable circumlocution, which, while it bespeaks a knowledge of the meaning, is infinitely preferable to a misspelling. As an example, the sentence, "The scheme was commendable," might be rendered equally effectively if less tersely by, "The plan was worthy of praise." To do this the pupil must know the meaning of the whole sentence, through a grasp of its constituent words, although he may not be able to spell them. In such a case, should any dubiety occur about the spelling of "scheme" and "commendable," it should be pointed out that the sense can yet be expressed by other words sustaining the meaning, provided the import of the original words be understood.

Circumlocutions to be used.

It is not always desirable, unless there be special reason for so doing, to ask children to write exercises in composition at home, where extraneous help is possible and expedition dominant, because the task is one demanding careful independent practice as well as independent thought.

Home Work.

II.—LETTER-WRITING.

PRELIMINARY OBSERVATIONS.

Letter-writing differs somewhat from so-called composition. In the latter the subject-matter is supplied nearly in full to the pupils, who are called upon to reproduce in their own phraseology a fixed statement embodying a definite idea. In the former the effort is more specifically their own, because the text or subject alone is supplied. To put it yet more succinctly, the story-writer puts down in sentences the thoughts with which you furnish him; the letter-writer, on the other hand, composes his own sentences, which express his own ideas. Grammatical accuracy, neat penmanship, and careful punctuation are not less important than full and intelligent matter. But the letter-writer has at least one advantage over the story-writer in that he has the full choosing of his own vocabulary. The latter must adhere pretty closely to that supplied in the narrative. It is well to realize that a pupil's difficulties, instead of diminishing when he begins to write letters, are distinctly increasing—a fact which shows more and more the need of your valuable instruction in the art and assiduous supervision of the work attempted by the pupils. Although a child hears and sees a great deal of letters, he can no more be expected to write one on a given subject, without previous training, than he can be supposed to write the binomial theorem from instinct. Still one who can reproduce a story with a creditable measure of accuracy may with little trouble be taught to compose a letter. There is an affinity between the two much the same as obtains between simple and compound proportion. They possess similar characteristics, but differ in point of grouping and the intellectual discipline required for their successful accomplishment. Just as both rules have to be taught, so both composition and letter-writing must be taught.

Letter-writing and Composition compared.

As soon as some skill is evinced in story-writing, the pupils

The Task explained.

may be introduced to theme-writing, which is perhaps more akin to the story than the letter. But after all the two are very closely allied, for the art of composing an essay is not so far removed from that of a letter, since they may be much the same in matter although differing in formalities. Both should be practised. But so far as letter-writing is concerned, for it has to be taught first, it will be well to introduce the young aspirants in a pleasant and encouraging way to the subject. Make clear to them that they are now expected to write their own ideas on paper in the forms of essays and letters, and that you will expect of them longer sentences, now that they are advancing and becoming better acquainted with grammar. Let them also understand that, when they are asked to write on a subject in letter form, the injunction has to be strictly complied with, else the omission will help to swell the aggregate of mistakes. Carefully explain the difference between an essay and a letter, that the neglect may not arise from any omission on your part. The essay embodies the individual's ideas of a given subject, or may be the expansion of a maxim; while the letter is supposed to convey information of a general or personal kind to some person addressed. Not the least agreeable part of the work is the getting up of what may be called the letter form. Its simplicity makes it possible to explain it at any time. Even before it forms a statutory part of the school curriculum, it might take the place of an object-lesson of a profitable nature in any of the junior classes.

The Form of the Letter explained.

Bring the blackboard into such a light that every child in the class can see it, and proceed to rule it carefully but lightly with chalk, so as to give it much the appearance of a page of ruled foolscap. The ruling is necessary to enable the pupils to see at a glance the relative positions of the various items characteristic of the letter. Then, commencing at the top, indicate the line where the name of the place has to appear. Follow this up by adding the date and the style of address, and showing where the letter proper should begin and probably end. The mode of closing the epistle should then be explained; nor should you omit to add at the left-hand corner the address of the person for whom the letter is intended. At first it will be best to address the letters from the school, and the supposed writer and recipient of the letter should be persons known to all the pupils. The letter form might be impressed upon the scholars by making them copy on ruled slates what you have explained on the board. Vary the names of the places and persons addressed. A few special exercises on the mere formula will produce familiarity with the style of the letter and the positions of its fixed conventionalities. These things being once rooted, and kept fresh by repeated practice, will seldom or never be forgotten. In prescribing the subject of a letter it will be well, for a time at least, if you supply the name and address of the person to whom it is supposed to be written. This will perhaps necessitate your indicating the manner in which a particular letter is to be closed. But the scholars will soon get accustomed to do this accurately and becomingly for themselves. By-and-by they will naturally realize that the form of address depends upon the degree of familiarity with the person addressed, as well as upon his recognized social standing. The punctuation marks should also be put in, with a view to adding accuracy as well as finish to the work.

Letters to be on familiar Themes.

The transition from the story to the letter should be gradual, and to effect this it will be found profitable to set the pupils to write the story in the form of a letter to a friend. A few exercises of this kind prepare them for more confidently tackling a prescribed theme. For some time at least the subject suggested should be one with which there may be supposed to exist a reasonable amount of familiarity. This is very necessary to insure steady application and confidence, because nothing is more depressing and dispiriting to a beginner than an utter collapse for want of ideas. Besides encouraging them thus far, you will find it of immense assistance in the way of stimulating and drawing the class kindly towards this phase of the subject, if, after prescribing it, you write on the board a few headings upon which they will write. This lightens the mental strain; but by-and-by they will become able to make headings for themselves. As progress is made both in efforts and ideas, the supply may be gradually diminished, till at last suggestions become wholly unnecessary, and, if offered, will be considered indicative of weakness in the recipient. Hints and headings undoubtedly detract from the value of the work, and show that the pupil is unable to perform it independently. Letter-writing assumes its most perfect and desirable form when one can proceed to perform the process with pen and ink, the subject alone being placed before the mind.

A SPECIMEN LETTER.

To be descriptive.

At the commencement letters of a descriptive nature will be very suitable. Children like to write these, and their whim should be humoured in this instance, because it is immaterial to you what they write about, so long as the effort is satisfactory and productive of good. Perhaps the descriptive letter is the easiest to deal with. As an illustrative one, "a description of the schoolhouse garden" will be very appropriate. The subject being named, write on an adjoining board the following headings, each of which you will expand in the course of the letter—1. The situation of the garden; 2. Its arrangement; 3. Its contents; 4. Its appearance just now; 5. Inquire about Edward's garden.

The Headings.

Explain that the letter is supposed to be written by a boy, John Stuart, to his cousin, Edward Wilson, whom he knows very well. After writing the headings as above, tell the class that upon each of them in succession something is to be written. Show them also that the order of the headings is a natural one. To emphasize the precise function of the headings, write each one alongside its expansion *before*, not after, you proceed to enlarge upon it. After filling in the necessary preliminary data, begin the writing of the letter proper. Write somewhat slowly at first. It will be a good plan also to affect a reasonable amount of deliberation and obvious thought. The pupils should gather from the attitude of your mind and body that they will be expected to think carefully and deeply before they write. As you proceed to deal with successive heads, they should simply give close attention to what you say and do. They ought to drink in the whole operation in both its formal and intellectual aspects. When finished, the letter might appear somewhat as follows:—

The Letter.

"HIGHGATE PUBLIC SCHOOL,
"*15th October 1890.*

"MY DEAR EDWARD,

1. Situation. "You wish to know all about our garden, so I must tell you. It is a pretty big one. It lies exactly in front of the house, and gives it a nice appearance. It looks towards the south, and so it gets plenty of bright, warm sunshine, which makes the flowers and fruit grow.

2. Arrangement. "A broad walk slopes from the front door to the foot of the garden. The gate is at the end of this walk. Three cross walks branch off from this middle one. Box grows at the sides of all of them. We must not run in the garden, because papa says we might injure the box with our feet.

3. Contents. "The garden is full of vegetables and flowers. Lots of pretty flowers grow in front of the house. Sweet peas grow on the wall, and they look very pretty. Potatoes, carrots, and onions grow in the middle of each plot. We have lots of fruit trees. I have one of my own. There are lots of apples on it, and I mean to keep a few of them for you.

4. Appearance. "You know that flowers and leaves fade in autumn. You will know what like the garden is just now. The berries have been eaten or made into jam. The apples and pears are to be pulled to-morrow. A man is taking up the potatoes and gathering them into heaps. Everything looks as if winter were coming.

5. *Edward's Garden.*

"I shall expect you to write me all about your garden in return for my letter. You must try to pay us a visit next summer, when we shall have rare fun among the fruit. I hope there will be a fine crop.

"I am, dear Edward,
"Your affectionate cousin,
"John Stuart.

"Mr. Edward Wilson,
"Elmbank,
"Huntly."

REMARKS ON THE MATTER AND METHOD.

The Letter is long for a Reason.

The above specimen of a schoolboy's letter may strike you as being somewhat long, and apt to exceed the limits of an ordinary-sized board. If you write small and neatly the board will likely hold it. The letter is intentionally made long and full. Every specimen you write should be of this nature, because fulness of detail rather encourages than dispirits the pupils, and you will find them often tending to write more briefly than you would wish. Write the sentences slowly, and as you do so read them. A sentence written and punctuated should be read aloud, that its truth and simplicity may satisfy the pupils, and give them heart and confidence as they follow you. Nor should a humorous vein be discouraged. The facetious remarks with which the letter is interspersed will help to sustain attention and interest, will make the operation more inviting, and will show the pupils that letter-writing, while highly intellectual, may be not the less enjoyable. A sprinkling of originality, wit, or humour makes letter-reading a pleasant task. You will observe that the sentences in the model are in the main simple, that the facts are clearly stated, and that the phraseology is of the most commonplace quality. After you have finished the letter and reviewed its main characteristics, a glance at the faces of your pupils should convince you of the effect and value of your instruction. In a case like this the countenance tells more

Humorous Remarks desirable.

than words. Leave the letter on the board for a night, that the class may have abundant opportunity and leisure to study and imbibe its most salient features.

Specimen Letters to be suspended on the Walls.

Now that the pupils have seen what they are expected to do, you will find it of the greatest help to them if you hang round the room four or five model letters on different classes of subjects. These should be written on foolscap, such as scholars are accustomed to use, and might be pasted on cardboard for preservation. There will thus be constantly before their eyes an ideal sufficiently high, yet attainable by any pupil, to foster perseverance in a particular groove. While the child writes his own ideas, a glance at the model will help to show him in what respects he is weak and in what he is proficient, if not excelling.

Good Subjects.

The Second Descriptive Letter.—The second letter of this kind, which you will also, with the assistance of the class, write on the board, might be "a description of a wet day," or "a description of a wood." Letters containing accounts of events or incidents are also enjoyable. Select simple and familiar themes at first, and such as local circumstances suggest. The pupils must have some knowledge of the matter before they can write about it. The very idea implied in a letter presupposes an acquaintance with facts, without which the exercise becomes an impossibility. Your function as teacher, in addition to selecting a topic, will be (1) to indicate the best arrangement of the matter, and (2) to illustrate the putting of ideas on paper in the plainest, neatest, and most readable manner possible. Entice the pupils into the spirit of the task by encouraging them to help you in your efforts to make good models on the board. The discipline in this respect is very much like that which obtained when you taught the composition of stories. Here also the sentences offered should be exposed to the criticism of the class, though not to such an extent as to discourage the weaker members.

Letters on Slates.

When ability to write sentences embodying their own ideas is manifested, the pupils may be set to write letters on slates for a time, so that corrections may be pos-

The Temper. **Subjects to shun.** **The Headings.**

sible without marring the work or injuring the progress of the youthful *débutants*. Be studious to praise those who do well, in addition to encouraging those who make slow progress. At such a time an even temper is a distinct boon. It requires to be kept thoroughly under subjection, for letter-writing demands much individual thought; nor should the equanimity of a child's mind be ruffled at a time when the intellect should be most vigorous and most concentrated upon a fixed topic. The heads you at first suggest with every new subject will be of great assistance to the pupils. The progress and capacity of the class will enable you to determine how long and to what extent you may continue this aid. The amount of your explanations will also be in inverse proportion to the pupils' knowledge of the subject. It is quite absurd to ask children to write about a person, or a didactic theme, or any other topic which you are pretty certain they are ignorant of. What Dr. Fitch has aptly called "arid generalities" are to be avoided. Even then the headings you give will be inaccessible to the child. When the subject-matter is known, the pupils will help you to devise suitable and orderly headings. Nor will the interest they take in this preliminary exercise be small. The supply of headings must not be suddenly dropped. Their number should be gradually diminished. Occasionally you will suggest one half of them, while the pupils supply the other. Almost any kind of letter may be arranged under heads which, while giving a methodical air to the work, are virtually helpful to the writer.

The Pupil to write the Heads. **The length of the Letter.**

The scholar should first write the heading at the left-hand side of the paper before proceeding to dilate upon it. See that he is studious to maintain a natural and well-jointed sequence, and that he exhausts one topic before enlarging upon the next. Each separate head should be treated of in a distinct paragraph. A glance at his headings will give you a pretty good idea of a child's capacity and progress. At first the letters will be shorter than you would wish. This is natural, and should not dishearten you, because with practice the habit of saying much will grow, and meantime it is quality rather than quantity that is the desideratum. Although letter-writing is essentially an exercise on paper, it has to be worked up to through the medium of the slate. You will find a tendency to put more on slates than on paper; but in any case, after some experience, a uniform level of ideas will ultimately make its appearance on both slates and paper. In certain cases it will be injudicious to allow your scholars to write too little. This may indicate a lack of suitable ideas, inability to commit them to paper, or laziness. It is your function to detect the cause of brevity, and endeavour to remedy the defect. But certainly a few sentences well composed, and carefully thought out and punctuated, are infinitely preferable to a mass of words neither intelligible nor grammatical. Further, it should be noted that it is often very depressing to a pupil to have his effort limited to a particular number of lines. The weak one sighs over his inability to write so much, while the clever one grieves that he is prohibited from writing more.

The more pupils read, and the fuller their instruction, the greater amount of intelligence they will become possessed of. Nothing is so productive of good and abundant matter in a letter as a well-balanced and systematic intellectual development. The widest read and best informed scholar ought to write the most creditable letter.

Subject to be named beforehand.

To prescribe the subject of the letter on the day before it is to be written is deserving of some commendation. This gives the pupils ample time and opportunity to think over and familiarize themselves with the matter. Next day they will not only have headings arranged, but they will also come forward fortified and anxious to write the ideas and information they have gleaned in the interval. But only in certain cases may they be asked to write letters or essays at home, although this is eventually to be the main field of operations. Too often the home influences and surroundings are anything but conducive to a sound and methodical performance of the exercise. The letters, while difficult to accept as *bonâ fide* efforts of the pupils, are more likely to be fertile in all sorts of mistakes than gushing in good qualities.

Essay-writing.

Essay-writing has already been touched upon. One naturally associates an essay with a particular class of subjects, not always suitable for letters, and the idea has taken root that an essay should be longer than a letter. At all events, the fact remains that no matter what the length of the production may be, it is all important that proper headings be fixed upon before the expansion of them is attempted.

Superintending the Work.

The advantages and disadvantages of stirring about amongst the pupils while at work are about even. By so doing you will be enabled to correct all kinds of mistakes under the very eyes of the child, and to give timely help in the shape of an idea or a word of encouragement to the duller intellects. As a *per contra* the excitement which your immediate proximity is apt to create is hardly conducive to a calm and thoughtful frame of mind in the pupil. Everything considered, it will possibly be safest to keep away from the class while the exercise is being performed. The revision of the work can be done afterwards. The leading and most serious blunders should then be commented upon and explained on the board. An essential part of the discipline is the subsequent contemplation of his shortcomings by each individual.

OBSERVATIONS ON GRAMMAR.

The Nature of the Sentences used.

In the composition of stories the use of simple sentences was to be encouraged, especially at first. It is reasonable to suppose that letters and essays which are of a more advanced type will exhibit a wider acquaintance with more complicated phraseology. A liberal interspersion of complex sentences is some guarantee that the learning is progressive and not stagnant, and that there is a natural and intellectual development urging on the child. At the same time, it will be necessary to convince the pupils, by repeated exemplifications, that it is not necessary, or by any means expedient, that long complicated sentences be adopted on every occasion. They should be satisfied that so long as a succinct simple sentence expresses their thoughts precisely, its adoption is most desirable. But for all your explanations, so many confusing topics occur to a child's mind at one time that he is unconsciously inveigled into an intricate sentence, from which he finds it hopelessly impossible to extricate himself. His proclivities are invariably towards the complicated when he essays to write or even express himself orally; and it is noticeable that as soon as he flounders in his ideas he gets lost in his sentences. A judicious mixture should characterize his sentences, but the simple one should be the most conspicuous.

Rules to be noted.

The observance of a few well-defined plain rules which pupils find most difficulty in obeying, will help to improve the grammatical aspect of the composition. While the grammar lesson ought to impress them, the composition exercise should embody their application. As an example, every child should know that two singular subjects connected by "and" are followed by a plural verb, and that two singular nouns separated by "or" or "nor" take a singular verb. Before the composition can be anything like perfect, there ought to be the utmost familiarity with the ordinary grammatical rules laid down in any well-arranged manual. Fortified with these the scholar should proceed to apply them in the construction of sentences which exemplify them. Grammatical errors should invariably be followed by a reconsideration of the violated rule. The syntactical grammar lesson and the composition exercise should, as it were, go hand in hand, or fit into each other. Grammar may be said to give colour or tone to the composition. Letters littered with bad grammar grate upon the intellect, just as harsh, obtrusive, or inharmonious colours disturb one's sense of what is sweet and natural. Grammar gives grit and backbone to composition.

"Shall" and "will."

Mistakes connected with the usage of "shall" and "will," though not of vital importance, do not sound well, and some attempt should be made to render their occurrence as seldom as possible. Scotch children are naturally more apt to make blunders than English ones. A valuable practical little rule occurs in a well-known grammar, which it will be desirable to take the liberty of quoting here :—

> "In the *first* person simply *shall foretells*,
> In *will* a *threat* or else a *promise* dwells ;
> *Shall* in the *second and third* does *threat*,
> *Will* simply then foretells the *future* fate."

The rule is practically correct. It should be written on the board, then copied in note-books, and carefully committed to memory. It will be of much service to ordinary pupils. But it is necessary that you should explain it clearly and deliberately, for upon your exposition and apt illustration its value as a profitable *vade mecum* will largely depend. There are many more grammatical points to which you will have to devote special attention, but the above will perhaps be sufficient to show the nature of the grammatical rules that are most apt to be infringed, and the pointed method of dealing with them.

PUNCTUATION.

When pupils begin to write compound sentences, they are very apt to break down in the punctuation. The prevalent mistake is the separation of the simple subject from the predicate. Undoubtedly there is a great deal of superfluous punctuation ; but still there is a measure which is necessary, and indicative of neatness, as well as comprehension of what is written. Put on the board such a sentence as this, which will show the main features of good punctuation : "When the fish, which we caught, had been taken out of the water, it leaped about, till at last it died." Leave it unpunctuated, and then proceed :—"There are certain things connected with sentences which you have been already taught. You know that a sentence must have a subject and a predicate, and when you write a sentence you have to take care that both of these things are stated. In putting in points you must be careful not to disturb the sense of the statement. Look at the parts composing this sentence. 'When the fish had been taken out of the water' is a clause, as you know—'fish' being the subject, and 'had been taken' the predicate.

'Which we caught' is another clause which is complete of itself—so complete, in fact, that it might be left out altogether and the sentence would still be sense. [Read it to prove this.] Instead of putting a ring round it to mark its wholeness, I put a comma before it and one after it—that is, one after each of the words 'fish' and 'caught.' And as one clause ends with 'water,' I shall put a comma after it. 'It jumped about' is another complete statement, so I put a comma after 'about;' and as the remainder is the last clause of the sentence, I put a *period* after 'died.' Now if I place the first comma after 'fish,' and the second after 'water,' observe what has happened. 'When the fish' may now be supposed to be a unit or statement by itself with a meaning, and 'which was caught had been taken out of the water,' is another complete statement, both of which you see are absurd. 'Fish' is here separated from its predicate 'had been taken;' but as soon as I put a comma after 'caught,' it is joined to it. Thus you see you must be careful not to separate a simple subject from its predicate." That the manipulation may tally with the explanation, make circumscribing lines round the separate clauses or items. This will enable the pupils to grasp still more clearly the precise force of the punctuation.

Superfluous Punctuation.

Superfluous marks are not to be encouraged. A sentence like this, "The man having gone out wandered into a field," should have no punctuation in the shape of commas after "man" and "out." By their introduction into the sentence the statement is not rendered a whit more succinct or clear; and where their presence is not felt, commas are unnecessary. The pauses after the words "man" and "out" are rhetorical, not grammatical. Prepare a list of specially constructed sentences, write them on the board, and solicit the aid of the class in punctuating them sufficiently and accurately. This will afford you ample opportunity of making full explanations, and will, at the same time, give your pupils, as a whole, a thorough grasp of what punctuation really implies. When you revise exercises, be careful to mark errors in punctuation as well as in spelling and grammar.

CHAPTER V.

ARITHMETIC.

NUMBERS WRITTEN NOTATIONALLY.

BEFORE you commence to teach the addition of large abstract and concrete numbers, it will be almost necessary to give instruction in notation-writing. This exercise in the younger classes is apt to be viewed in the light of an insuperable difficulty, and till it is mastered its associations are often anything but pleasant. Tackled in an earnest and methodical manner, it is found to be both easily and speedily taught. It has to be taught through *observation*, and until facility in putting sums on the board is secured, slate exercises need hardly be attempted. When recourse is had too soon to slates, the time taken to master it is unnecessarily prolonged, while explanations are more incomprehensible, less effectual, and in every way less satisfactory. It is taken for granted that as infants all the pupils can write correctly the numbers up to one hundred rapidly and in any order. That being the case, arrange your class in full view of the board, upon the top of which you will write, beginning at the right-hand corner, the notation signs as follows :—

7,	6	5	**4,**	**3**	2	1
M.	100 Thous.	10 Thous.	**Thous.**	**Hund.**	Tens.	Units.

You will observe that Hundreds and Thousands, as well as their numbers, are written more boldly than the others. This is to catch the eye of the pupil. Now take a pointer, and as you

Writing up to One Thousand.

point and name each of the data, beginning with units and ending at millions, let the pupils repeat the same simultaneously after you. Do this over and over again till all are familiar with both the names and their sequence. Then call special attention to the fact that the third place is for hundreds and the fourth for thousands. You might place commas after every set of three figures, and even draw vertical lines between the first four heads, but this will seldom be necessary. In order to get a proper grasp of the heading, the pupils might write it a few times on slates; and to insure that all know it, put a few questions bearing chiefly upon the sequence and order of the data. The hundreds' place must be firmly rooted in every mind, for it of itself is virtually the key to correct notation-writing up to a thousand. As only the first three symbols are to be made use of at first, you may, if you choose, remove the rest of the heading; but this is by no means a necessary step. Now place below units all the figures up to 10, and when this is reached make use of the tens' place till 100 is dealt with. Then the hundreds' column will be included. Lay stress upon the fact that the first column contains single figures, that the second is used when the number contains two figures, and the third when the number begins with a figure named "hundred." After this much is clearly understood, proceed to write a few numbers, the pupils merely following your movements and concomitant explanations. In placing the subjoined lines, you will point out that 9, being a number below 10, goes in the units' column. 46 contains two figures, and being a number below 100, 4 is put in the tens' place, for four tens make 40, and 6 in the units' place. In the third line 2 is called two hundred, hence it is put in the third or hundreds' column; and 35, having two figures, is

3 Hund.	2 Tens.	1 Units.
.	.	1
.	.	2
.	.	3
.	.	4
		etc.
.	1	0
.	1	1
.	1	2
.	1	3
		etc.
1	0	0
1	0	1
1	0	2
etc.	etc.	etc.

3 Hund.	2 Tens.	1 Units.
.	.	9
.	4	6
2	3	5
4	0	6
.	8	0

put under 46. In the next line, 4 is spoken of as hundred, hence it is placed under 2; and 6 is a unit below 10, so it must go under 5. Ask what it would have stood for had it been placed under 3. Then 80 being a number below 100 will be put below 06. Were 8 put below 6 it would be 8, and were it under 4 it would be 800. Continue the dictation and subsequent writing of the lines till the board is filled. As you arrange the figures, adopt an argumentative and explanatory style in order to impress notation-writing emphatically and intelligently. Enlist more and more the aid of the class at every step, and when every child gives evidence that he is in a position to do the work himself, set the class to write on slates the lines you dictate.

Notation above a Hundred.

As the pupils advance in arithmetic, the more comprehensive their knowledge of Notation will naturally become. Once the nature of the exercise is understood, and the first steps thoroughly mastered, they may very speedily be taught to write numbers which include thousands and even millions. Rewrite the symbols of Notation up to a million, number them, and test the scholars' ability to repeat them successively and rapidly. Place the commas as before, or draw faint vertical lines after every three figures, commencing with units; then, as before, dictate these numbers, and justify, as you write them, the order and positions of their constituent figures. The first, 682, is easily set, for 6 is hundred. Call attention to the fact that every figure bearing the name of thousand must be placed under one or other of the fourth, fifth, or sixth places, and dwell strongly upon the fourth as being the thousands' place. In dealing with the second number, make it clear that as 4 is named thousand, it must go below thousands, and that 5 being hundred, will be placed in the hundreds'

7, M.	6 100 Th.	5 10 Th.	4, Thous.	3 Hund.	2 Tens.	1 Units.
·	·	·	·	6	8	2
·	·	·	4,	5	3	6
·	·	2	7,	1	0	9
·	6	3	1,	0	4	0
2,	4	6	2,	1	0	8

column; 36 is easily set after that. In the third number, as 27 thousand is named, 7 being thousand, place it first, and show that as it is 27, 2 must go in the column before 7, for two tens make 20. 1 is hundred, and 9 a unit, so 0 may be placed between them, but not till they are located. Then when 631 thousand is named, place 1 first as being the thousand. The pupils are able to write 631 notationally already, so once the 1 is put in proper position, they will be satisfied at a glance with the allocation of 6 and 3 before it; and 40 is easy. No hundred was mentioned, so 0 is put in the gap. In the last number 2 million is placed first; then 2 is the thousand, so it is fixed next; the 4 and 6 fall in naturally; and 108 presents no difficulty, because 1 is the hundred and 8 a unit.

Points to Note. Continue this method of treatment, invariably settling first the position of the *million*, *thousand*, or *hundred*, as the case may be, and in a very short time you will find that the class will have a very fair grasp of Notation.

HINTS ON TEACHING NOTATION.

In teaching this important branch a few points demand special attention. Don't attempt to teach Notation till you have proof that every child in the class can write numbers up to one hundred in any order. In the earlier stages it is the hundreds' place that forms the key to success, just as it is the thousands' later on. A child that can write numbers of three figures notationally, who knows that the hundreds' place is the third, the thousands' the fourth, and the millions' the seventh, will rarely make a mistake, no matter what the number dictated may be. The symbols may be retained on the board for a time till you find them firmly rooted in the pupils' minds. Then they may safely be removed. Before allowing the class to use slates, continue to write list upon list of mixed numbers on the board, till every child both sees and understands the process. Put his knowledge to the test by putting promiscuous questions on every number you write. Reasons for the placing of the figures should be freely asked. This expedites a knowledge of the process. Then, when it is found safe to let the pupils use their slates, drill them in the first instance in placing properly the numbers under 100, after which those involving hundreds may be attempted. After dictating a number, let the scholars write it; examine their efforts, and then either write it on the board yourself, or what is preferable, challenge some member of the class to write it. This tends to inspire confidence, and at the same time acts as an antidote to carelessness or nervousness. If there be the least probability of failure on the part of the pupil selected, interest in the exercise will be redoubled, and the attempt itself, whether a failure or a success, will be of much educational value. For a time, till he gets familiar with it, the pupil should have upon the top of his slate an exact copy of the heading on the blackboard. A few vertical lines might also be scratched upon his slate to assist him in placing the figures exactly under each other. Further, the blank spaces before the numbers might be filled up with dots, which give a satisfying tone of completeness to the exercise. After a time you will find that the heading on both board and slates may be dispensed with, and that the pupils testify by their accuracy and despatch in locating the figures that such guiding marks are no longer necessary. The withdrawal of them, however, should be gradual. They ought to disappear from the board first, and should ultimately be found only on the slates of the dullest. Accustom the pupils early to distinguish between such numbers as 512 and 521, 406 and 460, etc. After dictating 517, let the next line be 571. Thus the eye and mind are conjointly exercised; the pupil notes the difference, and becomes wary and attentive. Early call attention to the fact that the units' column must never appear broken although the others may. Again, if you dictate 235 as "two hundred thirty-five," dropping "and," the precise nature of the figures will be more readily noted. By-and-by the "and" may be gradually introduced. There are various ways in which the Notation exercise may be performed. All of them should be practised. You may dictate the numbers yourself, and then write and explain them, or you may ask pupils to come forward by turns to write the lines. In this way individual weakness can be speedily detected and corrected, with advantage both to the pupil and the class. Again, you might write a number, and then ask some one to read it notationally. Nevertheless, it should be noted that this form of exercise is not nearly so instructive or impressive as challenging the pupil to write the figures on the board. In the former case, he may correctly stumble through what he knows very imperfectly; in the latter the figures are placed either right or wrong. Further, it is well to keep in mind that at the commencement a sum slowly and clearly dictated, every line being carefully understood and written before the next is given out, with earnest deliberate manner on the part of the teacher, and well-sustained and thoughtful attention on that of the pupils, is far more instructive than any number of similar sums perfunctorily and hurriedly dictated, and as hastily committed to the board or slates. To familiarize the pupils with the appearance which a sum should present on slates, they might occasionally be asked to write what you put on the board as a sort of concomitant exercise, even although the lines may not be subsequently added. While you studiously keep the minds of the pupils active, endeavour to keep them cool and collected, so that a steady, genial current of thought may be profitably maintained. When this branch is taught visibly and methodically, the short time which a class will take to master it is almost incredible. The addition of numbers will now demand attention.

SIMPLE ADDITION.

Notation should be combined with Addition and Subtraction, both to save time and maintain familiarity with the exercise. A child that can add two or more numbers under 10 mentally may very easily be taught to deal with larger and more numerous groups. At first his ideas of number are very limited, and he adds small digits correctly, probably because he is accustomed to think of them concretely. In course of time he becomes able to add without thinking of objects. When he is introduced to the addition of a row of abstract figures, he performs the process purely mechanically. At the same time, if allowed, he is naturally inclined to summon to his aid groups of strokes,

The Example.

the mind not resting satisfied or feeling assured unless something tangible is before the eye. The inclination to add by reference to his fingers, which are literally handy, is almost irresistible and exceedingly natural. At first he cannot add unless he sees objects mentally or in reality. By-and-by, through repeated practice, he grows to associate 6 and 3 with 9, not because he instantaneously sees 6 and 3 of something, but because he remembers the fact, after having seen it repeatedly proved at an earlier stage. Very early he can add and subtract numbers in the shape of digits, and soon he is introduced to the study of larger sums. The first few exercises in adding two or three short lines may be done by yourself on the board, while the pupils observe the process. The subjoined sum, dictated notationally, and written with the aid of the class, may be used to illustrate the process. Explain that the addition begins with the units' column. The scholars will be able to add 7, 4, 5, and 3 together, especially if you speak of them concretely, as 7 marbles, 4 marbles, etc. 19 is the result. Write it below the line added, and call pointed attention to the fact that 9, the figure at the right-hand side, is the one to be placed under the line, while the remaining 1 is added to the 3 at the foot of the next column. 13 is the total of it. Repeat the same process with regard to the striking out of 3, the right-hand figure, and carry the 1 to the 8 of the last row of figures. The third line amounts to 12, which, tell the class, as it is the amount of the last line, is just placed below it. The answer is thus 1239, and the sum is said to be added. Here the adding will probably appear easy enough to the child. What you have to impress upon him is the striking off and transposition of the right-hand figure of the aggregate of each row. A cross mark may be made at the right side of the board to keep this point in his mind. But although the numbers have for a time been written as above, and retained so that the young mind may, by repeated observation of the figures, grasp the order of the manipulations, after a number of examples

$$\begin{array}{rrrrl}
 & 2 & 1 & 3 & \\
 & \cdot & 6 & 5 & \\
 & 1 & 2 & 4 & \\
 & 8 & 3 & 7 & \\
\hline
1 & 2 & 3 & 9 & \\
\hline
 & & 1\cancel{3} & 1\cancel{9} & \times
\end{array}$$

have been dealt with in the same fashion, you may safely delete every number as soon as its component digits have been distributed. This will also tend to obviate that confusion which is apt to occur through the slovenliness of the pupil. In a little the cross mark may likewise be omitted.

Another Method.

There is another method of teaching Addition which some may prefer to adopt. The same sum will illustrate it. A line is drawn above the sum. The units' row of figures is added, and the amount 19 is placed above, the 1 being on the top of the second line and ready for adding. 9 is struck out and transferred to the answer's place. The tens' row amounts to 13, which is placed above, exactly as 19 was. 3 is struck out and removed below, and the last line is added. Its amount, 12, may be at once set below, or, if desired, it may first be placed in the vacant gap a step lower than 13, struck out, and then transposed. The advantage of this method is that a mistake can hardly occur in the manipulations. The only risk of error will thus be in the summation. After a time under-figuring and over-figuring, and, in fact, all subsidiary technicalities, will be unnecessary.

$$\begin{array}{cccc} & 1 & \cancel{3} & \\ \hline \cancel{1} & \cancel{2} & 1 & \cancel{9} \\ \hline & 2 & 1 & 3 \\ & \cdot & 6 & 5 \\ & 1 & 2 & 4 \\ & 8 & 3 & 7 \\ \hline 1 & 2 & 3 & 9 \\ \hline \end{array}$$

The Rationale of the Process.

To attempt to explain that, in the above sum, it is 30, 20, 60, and 10 that are to be added together in the second line, with the 10 of the 19 further included, will simply burden the pupils' minds with superfluities at once unnecessary and injudicious. The precise rationale of large summations is fitting food for more matured intellects. Intricate explanations at this stage can but retard progress. Sufficiency, the essence of simplicity even in its mechanical aspect, will give encouragement and promote expedition and success. Certainly, to know exactly what takes place in adding a number of lines is very properly accepted as a token of intelligence; but here it involves an effort which is somewhat beyond the grasp of a tender mind grappling with groups of abstract figures. While the knowledge would be of no practical value to the beginner, its tendency might be to perplex rather than encourage him.

When the child has accepted the idea of number, the use of fingers and strokes, as subsidiaries, should be rigidly suppressed. It will be very important to call attention to the fact that as 7 and 5 make 12, so 17 and 5 make 22, also ending in 2. When slates are used, see to it that besides making neat figures the pupils place them regularly in the sum. This prevents errors arising from a slovenly arrangement of the constituent figures.

A useful Note.

No matter how large the numbers to be added may become, the same mechanical method of summation will be sufficient to secure accuracy. With practice, the exercises of the pupils should be conspicuously lacking in all traces of subsidiary figuring. Lines should be rapidly summed, and the figures of the answer put at once in their proper places. Frequently put masses of figures on the board, and while you point to them let the pupils, by turns, add them rapidly up and down and across and across. Even adding digits arranged in a circle, thus affording an endless form of exercise, is both profitable and agreeable. Adding is a splendid mental discipline. The lines should be dictated notationally, and the pupils ought to write their answers in words as well as figures. After Subtraction has been learned, the scholars should be asked to prove the accuracy of their summations.

SIMPLE SUBTRACTION.

Not only do children, as well as adults, add, but they also subtract mechanically. The subtraction of large numbers, like addition, can best be explained on the board. As a preparatory step, drill the class every day in subtracting numbers under 11 from numbers below 20. The exercise is a mental one designed to train the pupils to rapid computation. All subtraction, in fact, consists in the above exercise, hence it is very essential that every child should be able to do it rapidly and correctly. This example will illustrate the subtraction of larger numbers. 87 is to be taken from 306. Call attention to the fact that the smaller sum must always be taken from the larger. As in

A special Exercise.

First Method.

Addition, beginning with the units, explain that 7 has to be taken from 6. 7 sheep could never be taken from 6, so that is impossible. Put a faint 1 before 6, thus making it 16. Subtract 7, and 9 remains, which is put in the answer's place. At the same time, add 1 to the next 8, and note 1 faintly to remind the pupils of the fact that 1 was put before 6. 8 and 1 make 9; so 9 is taken from 0. This is impossible, so 1 is put before 0 to make 10; and 9 taken from 10 leaves 1. But again 1 is added to the figure below 3, which is 0. And 1 from 3 leaves 2, which is put in the hundreds' place in the answer, and the subtraction is completed. Familiarize the class with these purely mechanical steps by repeating them over and over again on the same sum. In this method, which is an exceedingly old one, special stress has to be laid upon the fact that *when 1 is put before a figure in the upper line, 1 must be added to the next figure in the lower line.* The rule might be written on the top of the board briefly thus:—"*Place 1, add 1.*" It may be orally supplemented by adding that if 1 be not required in the upper line, 1 is not added in the lower.

$$\begin{array}{ccc} 3 & {}^{1}0 & {}^{1}6 \\ {}^{1} & 8_{1} & 7 \\ \hline 2 & 1 & 9 \\ \hline \end{array}$$

Second Method.

But Subtraction may be taught by a method which, if it be less workable than the foregoing one, has the merit of being more rational. Using the last question, proceed to expound it as follows:—"7 is to be subtracted from 6. This is impossible. But the top line is 306. Take 10 from 300, and 290 will be left. I draw a line above 306, and put 29 over 30. The 10 I add to 6, making 16; and 7 taken from 16 leaves 9, which I put in the answer's place as a unit. I now deal with 29, which has taken the place of 30. 8 from 9 leaves 1, and there is no figure to subtract from 2, so I just put it along with the 1 in the answer's place, thus getting 219 as the difference between the two numbers." This example is certainly not one of the easiest. It is utilized here to show at least one point where the method will present difficulty. In principle it is strictly correct, scientific, and intelligible; but it is the smallness of the problem that brings it within the reach of the child, upon

$$\begin{array}{ccc} 2 & 9 & \\ \hline \cancel{3} & \cancel{0} & {}^{1}6 \\ & 8 & 7 \\ \hline 2 & 1 & 9 \\ \hline \end{array}$$

whom the reasoning would in all probability be entirely lost were the task twice as large. Besides, the effect would be one of disappointment. Look again at the process. The scholars will understand that 290 + 16 is an equivalent for 306, and they will not hesitate to subtract 87 accurately from the former; but in certain computations of even three figures, you will find the disintegration of the primary number almost beyond their highest efforts. When the exercise is large, this method, however laudable in itself, takes longer time than any other to teach. A task which puts abnormal pressure upon the brain is to be avoided, especially when an equally practical and sufficient though less scientific performance will produce the same desired result. For scholars of higher intellectual capacity, the scientific aspect of the question is more properly fitted. Subsidiary figures should be carefully noted till the manipulations are thoroughly mastered.

Third Method.

What may be considered another mode of teaching this rule is virtually the one first explained, in so far as the manipulation is concerned; but the *modus dicendi* is somewhat different. When the lower figure is larger than the one above it, a mysterious ten is borrowed from some benefactor not specified, and because it is employed to augment the minor number, the scholars are trained to talk of paying it back by adding 1 to the next lower figure, which, to all appearance, never sustained any loss. There is something comic in this allusion to equity. At all events, when the personal element has no footing, the child, viewing the matter broadly, and as a thing undisputed, will concur in the proceeding, even although 1, the amount refunded, may occasionally stagger him, should he begin to reflect that it is poor compensation for the 10 borrowed. But after all, it is probably the mechanical phase of the solution, and not its equity, that really concerns him. The process is possibly rather encumbered than not by the constant repetition of the enigmatical but popular formula. If a stereotyped and mechanical method be aimed at, and this method adopted, for a time the faint guiding marks may be retained to impress the process. The placing of the 1 before one figure, and the 1 after the other, should be done at the same moment in order to associate the two things together, and emphasize the fact that the one necessitates the other.

Adopt the method which you can expound most speedily and efficaciously. It is unnecessary to compare respective merits, but it should be said that whatever system you adopt should be strictly adhered to. Allusion to two methods occasions endless confusion. Even after you have explained the science of the rule at some future time, the pupils will undoubtedly execute the work on all occasions in a purely mechanical fashion; but the increase in knowledge and the intellectual discipline will of themselves be beneficial.

Adhere to one Method.

Interlard your teaching with frequent and periodic drill in mental exercises, in which concrete numbers may be specially included. Again, if the Addition sum consists of six lines, after adding, the pupil should draw a line under the fifth row of figures, add all above it, and subtract the result from the original answer to get the line omitted. In this way the addition may be proved. Further, to test a Subtraction exercise, add the lower line to the answer to get the upper. These performances have obviously a twofold value, and should be systematically practised.

Proving the Work.

Problems involving a certain amount of thought and variety sufficient to sustain interest in both rules should frequently be set. These might be taken as examples: "How many years are there between 1391 and 1890?" "A man paid £60 for a horse, £20 for a cart, and £8 for harness; how much did he pay altogether?" The commingling of calculations makes the work attractive as well as specially profitable.

Problems.

THE MULTIPLICATION TABLE.

As a preparation for Multiplication, the table has to be got up. Unfortunately for both teacher and taught, no mechanical device or royal road for the mastering of this *pons asinorum* of arithmetic has been discovered. Nevertheless, it has to be known, for progress is stagnant without it. Nothing can be substituted for it; its utility renders it indispensable. To the child with a vacillating memory the task is undoubtedly a formidable one. The table should be mastered as early as possible, and kept fresh by constant daily or weekly drill in it alone. It should be as much the child's companion and as familiar to him as his right hand. As it is really the backbone of all arithmetic, it should be thoroughly known from beginning to end. Some children learn it much more quickly than others. To set the pupils to write a few times on slates the line under consideration will tend to make them remember it more speedily. They will also make progress if you let them commit the line to memory, after you have written it on the board. When you ask a child 5 times 5, he says 25 for one of two reasons—(1) because he remembers its position and appearance, or (2) because of the association of sounds. In either case the answer, while correct, is less valuable than one which is the outcome of a rational computation. But, after all, the table is in almost every instance got up through the association of sounds. If, then, you wish it mastered through the eye, write the lines on the board and keep the pupils staring at the figures while they repeat them; but if through the association of sounds, let them repeat the statements over and over again till the ear and mind get thoroughly familiar with the symbols in their various connections. It is exceedingly desirable that the whole eleven lines should be remembered as soon as possible; and while they may be learned as they are required, frequent recapitulative drill should be intermixed with the special exercises of the day. At first half a line will be amply sufficient for a task. After the whole line has been overtaken, revise it through and through before another one is begun. It will do no harm—it may be of benefit—to point out a few things. For instance, when you write a line, or a portion of one, say "three times," explain that the successive numbers increase by three, just as they increase by four in "four times." Show, also, that in "five times" 5 and 0 occur alternately throughout the whole line, as the result of successive increments of five.

How it is learned.

Aid in learning.

When numbers containing two figures occur, the pupils should be taught to multiply them at length by the digits. When you ask the number equivalent to 3 times 3, you ought not to be satisfied if the child has to repeat the line mentally from the beginning—another proof of the association of sounds—till 3 is reached, and 9 bursts spasmodically from his lips. There is no necessity for this abstruse rehearsal—a mere recitative habit. Plenty of practice in answering orally questions put in any order will soon eradicate a trait so disgusting.

The value of the preparation of the task, which may be made a home one, can be tested by putting questions orally and promiscuously, while the pupils write answers on slates, with a reasonable measure of smartness. Although you use the board for purposes of emphasis and demonstration, you will do well to see that each child is provided with a card on which the lines are printed perpendicularly, and each wholly and distinctly by itself, the multiplicand being repeated every time.

What the Table is.

Although it is very unlikely that any child for a single moment considers that 9 nines added together amount to 81, it will create a deal of healthy interest if, when time permits, you point out that the Multiplication Table is, after all, but a collection of useful summations.

SIMPLE MULTIPLICATION.

Before you explain the multiplication of a line of figures by a digit, be at pains to drill the class orally on the table in so far as it bears upon this line in particular. Familiarity with the preliminary facts must be perfect before progress can be expected. At first the multiplier will probably be 2. You accordingly proceed to show the popular method of multiplying by it.

The Method.

Write on the board 3621; under 1 place 2 the multiplier, and call the attention of the pupils to this the invariable position of the multiplier. Then explain that you are to show them how to multiply the horizontal row of figures by 2, and that it is virtually the same as the line of the table, in which the figures are vertically instead of horizontally ar-

$$\begin{array}{cccc} 3 & 6 & 2 & 1 \\ & & & 2 \\ \hline 7 & 2 & 4 & 2 \\ \hline & 12 & & \end{array}$$

ranged. After this, begin the multiplying process; and as you demonstrate it, be careful to point to the figures. The rule will at first strike the child as being one of arrangement rather than of novelty, especially up to the point when 6 has to be multiplied by 2. Be careful here, for this is one of the vitally important steps. Tell the class that 12—the result—has to be taken below and treated as a sum in Addition. 2 is struck out and placed under 6, while 1 is added to the result of multiplying 3 by 2. So the answer or product is 7242. Recapitulate the various steps two or three times. The first few exercises on the board might contain but one case of "carrying," till the process is grasped. When ciphers occur in the multiplicand, the working will be a trifle more difficult, yet perfectly intelligible, provided you insist upon it that the ordinary steps are rigidly adhered to. The fact that 4 times 0 is 0, and not 4, is perplexing. If you show that 4 times 1 is 4, the absurdity of making 4 the product of 4 times 0 will be forcibly impressed. Once the class has had some practice in multiplying by one figure, and the marked deviation from the Multiplication Table has been mastered, the underfiguring should be removed as soon as it has served its purpose. Ultimately the whole process ought to be conducted mentally. You will be able to gauge the proficiency and uptake of each member of the class by his own effort upon the slate. For a time an alternate board and slate exercise might be adhered to, the former being a trifle more difficult than the latter for the sake of encouragement. But, after all, it is not easy to say in what the difficulty consists after a child has mastered the carrying step and the Multiplication Table. One that can add well will have little to trouble him in Multiplication. It is most injudicious to begin children to multiply by suspending in front of them a gigantic table to which they can refer as they proceed. They are thus accustomed to rely upon its presence and aid, and not upon their own knowledge. A table imperfectly got up denotes waste of valuable time and constant vexation to both teacher and taught. It is likewise most disgusting to imagine a child stumbling through

A Point to note.

the task and arriving at a dubious solution by the aid of a table held in his left hand, and to which he makes constant appeal for information which should have already established itself in his memory.

Multiplying by two Figures.

It is not easy to say when the class may be asked to deal with two figures, but as the finding of products by one figure is apt to become monotonous, perhaps the double multiplier, such as 23, might be introduced as soon as the fifth line of the table has been reached. In expounding the multiplication of such a sum as 32658 by 23, call attention, in the first place, to the position of the multiplier. 2 being tens is placed under 5, also tens. Explain further that the process begins at the units, and that, in short, the number has just to be multiplied first by 3 and then by 2, precisely as it would have been had only one figure formed the multiplier. *Set the pupils to multiply the number by 3 and 2 as separate exercises on slates.* After that it is your function to show how the product obtained by 2 is to be dealt with. Meantime impress the fact that as 2 is the second figure of the multiplier, 6, the first figure of its product, is placed exactly below 7, the second figure of the first answer. Repeat this a few times that the pupils may simply grasp the point, that when the second figure is used as a multiplier the first figure of its product is put below the second of the line above; and, if you care, you may extend the rule by inferentially observing that a third multiplier would have its product beginning below the third figure of the first result. After the multiplying is finished the addition of the results is easy; but you must obviate the risk of error by insisting upon it that the figures are placed carefully and exactly under each other, precisely as in Addition. Hence the work should not show a crowded appearance on the slate. By asking the pupils from the very first to find the separate products for you, you encouragingly show them that the solution is simply an aggregate of products such as they have been already accustomed to find. The apparent magnitude of the task is thus minimized, while its novelty is sufficient to sustain healthy interest in the work.

After a little the intermediate step of multiplying the multiplicand by each figure of the multiplier as a separate exercise will be unnecessary. When the task involves the multiplying by more than two figures, the increase may be said to be in manipulations, not in difficulty, for the method and process are the same in every case.

A Multiplier with Ciphers.

The exercise assumes its most perplexing phase when ciphers occur in the multiplier or multiplicand, or in both. Still, any seeming difficulty will be overcome if you insist upon strict adherence to the rules already laid down. You might illustrate the need of their observance by multiplying such a sum as 206900 by 30500. The first, second, and fourth results will show a row of ciphers in the manipulation. The first figure of each will appear, as before, under the figure in the multiplier itself. This will guide pupils whose working is characterized by care and neatness; but the ordinal number of the initial figure must be specially dwelt upon in every instance. The annexed solution shows the statement detailed, in order to make it plain and explicit to the class. After working out a few examples, and while the last one is still staring the pupils in all its minutiæ, you may proceed to show its solution in the popular curtailed form. In doing this urge especially that each cipher in the multiplier must be set in its numerical position in the body of the solution. You might make the initial ciphers of the detailed example larger and more pronounced than the others, in order that their identity with those in the abbreviated manipulations may be more apparent. Draw a line through, or, what is better, remove the superfluous ciphers, and lower the first two prominent ones to the level of the third line. Raise the last result to the place vacated by the ciphers above it, and the transformation of the detailed working to the precise appearance of the curtailed will be at once obvious and complete. Repeat this double exercise a few

$$\begin{array}{cccccccccc}
 & & & & 2 & 0 & 6 & 9 & 0 & 0 \\
 & & & & & 3 & 0 & 5 & 0 & 0 \\
\hline
 & & & & \cancel{0} & \cancel{0} & \cancel{0} & \cancel{0} & \cancel{0} & \mathbf{0} \\
 & & & \cancel{0} & \cancel{0} & \cancel{0} & \cancel{0} & \cancel{0} & \mathbf{0} & . \\
 & 1 & 0 & 3 & 4 & 5 & 0 & \mathbf{0} & . & . \\
 & \cancel{0} & \cancel{0} & \cancel{0} & \cancel{0} & \cancel{0} & \mathbf{0} & . & . & . \\
6 & 2 & 0 & 7 & 0 & \mathbf{0} & . & . & . & . \\
\hline
6 & 3 & 1 & 0 & 4 & 5 & 0 & 0 & 0 & 0 \\
\hline
\end{array}$$

times, till the more expeditious mode of solution, henceforth to be adopted, is intelligently understood. As accuracy in computation almost entirely depends upon ability to multiply by figures under 10, the pupils should be frequently drilled in multiplying by one figure only, in addition to the frequent, periodic discipline on the Multiplication Table.

The Rationale of the Rule.

Hitherto the simplest mechanical methods have been explained, and, so far as accuracy in computation is concerned, these will prove amply serviceable; but the rule must not be considered taught until the pupils have had expounded to them the rationale of the process. Referring to the first example, you should show that 3621 multiplied by 2, gives 7242, the same product which would be obtained by multiplying 3000, 600, 20, and 1 separately by 2, and then adding the results. This will make clear the reason for adding 1 to 6, thus getting 7. Again, you might point out that as multiplying a number by 2 is equivalent to doubling it, 3621 doubled, that is 3621 added to 3621, amounts to 7242.

$$\begin{array}{cccccccccccc}
3 & 6 & 2 & 1 & \times & 2 & & & & & \\
\hline
3 & 0 & 0 & 0 & \times & 2 & = & 6 & 0 & 0 & 0 \\
. & 6 & 0 & 0 & \times & 2 & = & 1 & 2 & 0 & 0 \\
. & . & 2 & 0 & \times & 2 & = & . & . & 4 & 0 \\
. & . & . & 1 & \times & 2 & = & . & . & . & 2 \\
\hline
3 & 6 & 2 & 1 & \times & 2 & = & 7 & 2 & 4 & 2 \\
\hline
\end{array}$$

In addition to this it will be interesting to show that a number multiplied by 532 is virtually multiplied by 500, 30, and 2. This will clearly demonstrate the necessity for putting the initial figure of each line under a figure corresponding with the number of the line itself. You could also show that 245 multiplied by 23 gives a result the same as that obtained by setting down 245 twenty-three times and then finding the sum. This can be easiest proved when the multiplier is a single figure. Its use is to explain a principle rather than provide a method of solution. Thus while the mechanical process is grasped and accurately manipulated, there will be imparted an intelligent notion of the precise advantage gained and the purpose served by the rule called Multiplication, which is, after all, essentially Addition. Although your explanations supply a measure of intelligence to the pupils, you need not expect that this extra knowledge will enable them to obtain solutions with greater correctness and despatch than if they had never had the matter fully explained. Children are not prone to reason why, when they sally into the perilous field of figures. After Division has been taken up, they should be taught to prove the accuracy of their multiplications, by dividing the product by the multiplier to get the multiplicand. Before such terms as "multiplicand," "product," etc., are used, they should be explained in so far as their application is concerned.

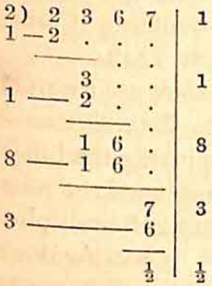
SIMPLE DIVISION.

Long Division.

The Method.

The Form of "Catch" Question to ask.

Division is a somewhat more difficult rule to teach than Multiplication, which naturally precedes it. It is practised in its two forms "long" and "short." Perhaps most will agree that the rule should be acquired in its long form first, because it shows the subsidiary figures, and enables the pupils to see the precise nature and sequence of the various steps. By some such method as this the essential grounding in the rule may be impressed. Put 2367 to be divided by 2 on the board, and after explaining the arrangement of the divisor and dividend—terms which you will be careful to explain—draw a perpendicular line, after which the quotient or answer will appear. Then proceed:—"Here 2367 is to be divided by 2. Division begins at the left, not at the right side, like the other rules. The sum is taken figure by figure. I now wish to know how often 2, the divisor, is contained in the first 2. 'Once' you say, for once 2 is 2. [Place 1 below the divisor.] This 2 I put below 2. But this 1, which is a multiplier, would have been got if I had asked *what 2 must be multiplied by to get 2?* so after this I shall always put the question in that form. Now subtract 2 from 2; nothing remains. I then take down 3, the next figure. The question now is, What must 2 be multiplied by to get 3? If it were multiplied by 2 I should get 4, for twice



2 is 4, which is too much. 1 is less than 2, so I must multiply 2 by 1. This gives 2 as before. [Place the quotient figures as in the example.] Now subtract; 2 from 3 leaves 1. I put 1 exactly under 2 as in Subtraction, and I take down 6, the next figure, which I put after 1, thus making 16. The question is now, What number must 2 be multiplied by to get 16? 2 multiplied by 6 would give 12, by 7 would give 14, and by 8 would give 16, the sum I want; so I put 8 before it, and in the answer's place, and 16 under 16. Subtract; nothing remains. 7 is then taken down. 2 multiplied by 3 gives 6, the nearest sum to 7, which is less than it. It must be less than 7, because it has to be subtracted from it. 6 taken from 7 leaves 1. Observe what I do with this 1. I draw a line under it, and below the line I put 2, the divisor, making it what is called a half, which is part of the answer. The quotient or answer is thus 1183½." Retain the solution, and, with the aid of a pointer, slowly rehearse the various steps. As they are referred to they may be written on the top of the board for the pupils' guidance thus:—(1.) A figure is first to be found and placed twice. (2.) Multiply. (3.) Subtract. (4.) Take down the next figure. The above exposition is elaborate, and guiding lines have been introduced to give lucidity. In a little the quotient will only have to be written once, and in horizontal form; meantime it is doubled in order to show clearly that each of its figures is a separate multiplier. This brief and simple example contains the essential features of the rule, hence the necessity for recapitulating it again and again till the nature of the formula is thoroughly understood. The point upon which most stress has to be laid is the question, *What must the divisor be multiplied by to get a number nearest to but not greater than the dividend?* Drill the pupils in asking this form of question, for it throws them into the correct groove at once. After they show aptitude in dividing by one figure on slates, they may be taught to divide by two or more figures. For example, you might show them how to divide 69251 by 35. Here the manipulations are a little more difficult. Lay special

The Steps.

Division by Two Figures.

stress upon the fact that it is 3 (underline it), the first figure of 35, that mainly determines the quotient. Then proceed to deal with 3 and 6. 3 multiplied by 2 gives 6. But 35, not 3, is the divisor, so 35 has to be multiplied by 2. Do this, and when you find that 70 is the result call attention to the fact that 70 is greater than 69, and consequently cannot be taken from it. 2 is thus too large a number to multiply by. In this way 1, the initial figure of the quotient, will be arrived at, and the subsequent figures obtained in a similar manner. The point just dealt with embodies the main difficulty in the rule. Its repetition in the course of the solution will tend speedily to familiarize the class with it. It will also be well to point out that what remains after subtracting must always be less than the divisor. This, and the point already referred to, form the salient features of the exercise. The finding of the constituent parts of the quotient is very much empirical, and when the divisor is large it is apt to be so even in the case of practised arithmeticians. Still familiarity with the rule will render the steps less and less experimental, and ultimately the first scrutiny will pretty accurately determine the exact quotient. The pupils should have a thorough knowledge of the Multiplication Table, and at first, after each product has been obtained as a separate step, it should be transferred to its place in the solution. A number of pointed exercises should be solved on the board with the aid of the class. It is infinitely better that the rule should be learned in this way than through a course of repeated blundering on slates. When a pupil is set to work out a sum on the board in presence of his class-fellows, the eager and critical eyes with which they watch the manipulations are sufficient guarantee that the plan is sound and instructive. Much practice on slates, however, is necessary to foster self-reliance. Independent effort must never be lost sight of. Finally, when the guiding lines and subsidiary figuring have performed their function, most of the solution should be effected mentally. It is a serious mistake to allow a pupil to find out experimentally how often a divisor, such as 7, is contained in 43, by making forty-three

A Thing to be avoided.

strokes on his slate and dividing them into groups of seven each. The spontaneity and simplicity of the effort are certainly evidence of its naturalness; but the tedium and clumsiness of the process, and the entire absence of any form of intellectual discipline, conclusively prove that it is neither profitable nor desirable.

Short Division.

To a child Short Division is not nearly so plain as the extended form. This is owing to the fact that there are steps which have to be performed mentally, both increasing the difficulty of solution and necessitating a more concentrated mental effort. At the same time, it is necessary to teach this phase of the rule, because a knowledge of it will greatly expedite the intricate operations attaching to the subsequent and more complicated rules. It can be taught easiest and fastest by working out the calculation first by Long Division, then immediately after by Short Division alongside of the former. The pupils are thus enabled to institute comparisons between the manipulations of the two solutions. They will note that what is put in figures in the one is accomplished mentally in the other, and yet the quotient is the same. The outstanding distinction is that the one shows how the result is obtained, while the abbreviated form merely exhibits a result.

The Method.

Put the annexed sum on the board to explain the work. Divide 24706 by 2, using Long Division. The pupils

```
       1 2 3 5 3
   ___________________
 2 | 2 4 7 0 6 |           2 | 2 4 7 |0 6
   | 2 . . . . |             |__________
   |____ . . . |               1 2 3 5 3
       4 . . . |             ___________
       4 . . .
      ____ . .
         7 . .
         6 . .
        ____ .
         1 0 .
         1 0 .
        ____ .
             6
             6
            ___
```

will effect the solution. Place the quotient above the dividend, the figures being exactly above each other. 12353 is the answer. Now arrange the same number in Short Division form, and tell the class that instead of putting down all the figures necessary in the case of Long Division, you are to do the same working mentally, and that only the answer will appear. The first question to be asked each time is the same as in Long Division. 1 multiplies 2 to get 2, and nothing remains; 2 multiplies 2 to get 4, and nothing is left. Then 3 multiplies 2 to get 6, the nearest number to 7, and 1 remains. At first place this 1 faintly before 0. Then 2 multiplied by 5 gives 10, and 2 multiplied by 3 produces 6. At each step compare the solution arrived at mentally with its appearance and position in the longer exposition. Thus the one method becomes explanatory of the other. The solutions are virtually identical, as a reference to the nature and positions of the quotients will show. Work out on the board a number of similar sums, using a variety of divisors, and when you set the pupils to work on slates, let them for a little solve every exercise by both methods, till the precise nature and function of the curtailed method are grasped, through the medium of the computation first effected *in extenso*. The advantage of teaching the long process first is obvious, because it affords that lucidity and insight into the other which bespeak success. Considerable vigilance will have to be exercised while the pupils are working independently. They must not offer as Short Division answers what have been copied from detailed solutions. For a little they may be allowed to put the carried figure faintly before the next in the dividend; by-and-by the remainder must be mentally retained. Short Division is essentially useful when the divisor is a unit. Still it should be explained that a number may be divided by 5 and the quotient by 5—the two factors of 25—(Short Division), instead of by 25 as in Long Division. The disadvantages are that the remainders necessitate an extra step, and while the reason for the process is less apparent, the risk of error is doubled, owing to the corresponding increase in the manipulations. In every case the accuracy of the work should be tested by multiplying the

A Divisor with Two Figures.

quotients by the divisor to get the dividend. This also is of value because of the extra practice in figures which it supplies.

Division a form of Subtraction.

While not trenching upon the mechanical mode of solution, you should not give over the rule till you have shown the pupils that Subtraction and Division are closely akin to each other—that the latter, in fact, is but a mode of simplifying the number of repetitions of the former. The quotient is the number of times the divisor can be subtracted from the dividend, and the fraction, if any, which remains is a fraction of the divisor. This can be illustrated in a simple way by subtracting 2 from 6, when 4 remains; then 2 from 4 leaves 2, and 2 from 2 leaves 0. Point out that 2 has been subtracted three times, and the quotient of 6 divided by 2 is also 3. What are called the four elementary rules have now been considered.

COMPOUND ADDITION.

Table constructed from actual Coins.

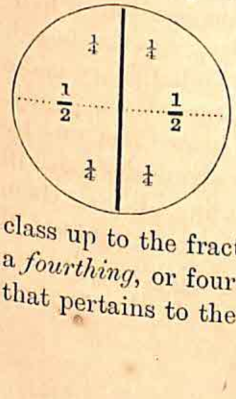
A thorough knowledge of the foregoing rules and of the money equivalents is absolutely necessary before the compound rules can be attempted with success. As a preparatory exercise the Money Table in a limited form has to be got up. The scholars themselves should construct it. Produce the actual coins and lay them on the table before them. Let them handle them and think of the value of each while you make the requisite explanations. When they are quite familiar with relative values, take two farthings in one hand, and after the pupils suggest that a halfpenny is the same, write the statement briefly on the board. From this foundation you will be told that two halfpence make a penny, and four farthings as a consequence also a penny. Take a handful of pennies, and while you drop them one by one on the table let the pupils count them simultaneously till twelve is reached. Then lift and show a shilling, and tell them that its value is the same as twelve pence. Six pennies will be equal to the silver sixpence, and twenty shillings equivalent to one pound or a sovereign. Write the facts thus arrived at as here shown, and let the pupils commit to memory as a sort of table the last three items after the others have been removed. This constitutes the "Money Table." Most children are familiar with the leading money equivalents. It is when florins and half-crowns enter into the problem that a measure of perplexity is apt to be occasioned. After much oral drill on the above table, the money symbols should be written along the top of the board and their significance explained. Put £ at the left-hand side, and tell the class that it represents the pounds' column, so that all figures written under it are to be considered pounds. Then write S—it will readily be accepted as suggestive of shillings—and finally place D, which is the mark of pence. The order is thus pounds, shillings, and pence. Halfpence and farthings are written immediately after the pence without any specific distinguishing symbol being placed above them.

2 farthings	make a	halfpenny (½d.)
2 halfpence	"	penny.
4 farthings	"	penny.
12 pence	"	shilling.
20 shillings	"	pound.

Money Symbols.

The fractions denoting halfpenny and farthings may be graphically explained. Draw a large circle on the board, and tell the pupils that it is to be looked upon as a large penny. Draw a perpendicular line through its centre, thus dividing it into two equal parts or halves. Refer to one of the halves and show that it is just one part of two. Write the statement in this form—½, and pointing to the 2 explain that it stands for the two parts into which the whole penny is divided, while the 1 conveys to the mind that one of the parts is meant. But half of a penny is a halfpenny, so the expression ½ is accepted to signify a halfpenny. In a similar way, by drawing a horizontal line so as to divide the surface of the circle into four equal parts, lead the class up to the fractions representing a farthing (which is really a *fourthing*, or fourth part) and three farthings. Thus may all that pertains to the penny in the matter of coinage and written

Halfpenny and Farthings explained.



symbols be interestingly explained. If the above has been taught as an object-lesson before this time, there will now be no need to do more than recapitulate the facts.

The Method of Adding.

Coming again to the symbols £ s. d., place above d. 12, and explain that this is done for a purpose, and to fix in the mind that 12 pence make a shilling. Above s. put 20, to mark that 20 shillings are equivalent to a pound. When farthings occur, 4 should be written above the column. Now proceed to dictate aloud and write the various successive lines of this sum, placing the items in their proper places as you do so, and call attention to the separation of parts of different value by intermediate "points." Tell the class that the figures must be put carefully under each other with a view to facilitate the adding of them, which is the aim of the exercise. Having done this, review the general appearance of the items. There is a row of farthings and halfpence, or sums less than a penny; a column of pence, each number being less than 12, or a shilling; another of shillings, each group being less than 20, or a pound. The last row includes pounds, which may be of any number. Point out that the addition process begins at the farthings, the same side as in Simple Addition. Put alongside of each fraction its equivalent number of farthings. Tell the class that the whole row must be turned into farthings first. Then add them, getting 8 as the amount. But, as four farthings make a penny, if 8 farthings be divided by 4 (the figure noted above farthings) the quotient will be the number of pence equal to 8 farthings. Divide, thus getting 2 pence, and no farthings remaining. Place $\frac{0}{4}$ under the farthings' column, and explain that as the next row is pence, the 2 pence already obtained will have to be added to it. Add the pence line by line. The amount is 28 pence. Twelve pence make a shilling, so every 12 in 28 pence stands for a shilling. Divide. 2 shillings are found, and 4 odd pence remain. Put 4 under the

		(20)		(12)	(4)	
£		s.		d.	—	f.
4	"	6	"	5	$\frac{1}{2}$ —	2
12	"	10	"	9	$\frac{3}{4}$ —	3
6	"	15	"	10	$\frac{1}{4}$ —	1
1	"	2	"	2	$\frac{1}{2}$ —	2
24	"	15	"	4	$\frac{0}{4}$	(8)
		20)35(1£. 20 15s.		12)28(2s. 24 4d.	4)8(2d. 8 $\frac{0}{4}$d.	

pence column, and carry the 2 shillings to the shillings' row. Added, it amounts to 35 shillings. The number of times 20 shillings (the number above s.) are contained in 35 will denote the number of pounds in this number of shillings. 1 pound is found, and 15 shillings are left. Place them below the shillings in the sum, and add 1 pound to the pounds' column, which amounts to 24. The total amount equal to the different items of the sum is thus discovered to be 24 pounds, 15 shillings, and 4 pence, and the addition process is completed. While the solution is fresh, take a pointer and rehearse the various steps, laying special emphasis upon these points—(1) farthings are added first, pounds last; (2) turn halfpence into farthings, and add the whole column in farthings; (3) 4, 12, and 20 are the divisors; (4) the quotient is added to the next row, while the remainder, if any, is put in the answer's place. It will be well to show the working in detail exactly as above till the rule is learned. A comprehensive sum thus dealt with shows the simplicity and fullest aspect of the computation. When the rule is learned through a series of cumulative fragmentary steps, the tedium of it becomes irksome. It is comforting to the pupils to know that all the operations involved in the rule are before them in one example. If they have an intelligent knowledge of the facts, the sequence of the steps necessary for the solution will be impressed in an incredibly short time. Abundance of practice on slates should follow your exposition, and a sum wrought out in full might be left on the board, so that, should dubiety occur, a glance at the model may tide a dull one over his difficulties. By-and-by 4, 12, and 20 ought to be removed, and Short Division substituted for Long when an application of the rule is necessary.

The Steps.

The Example to be a complete Sum.

COMPOUND SUBTRACTION.

Compound Subtraction may be very easily taught after Addition. In this case, also, a detailed example will simplify and expedite the grasp of the rule. Three popular methods of teaching may be considered. The

First Method.

most rational is put first. Put on the board £12, 13s. 6¼d., and underneath it £9, 16s. 8½d., which is to be subtracted from it. By way of introduction review the arrangement of the items. Speak of there being but two lines, because the rule is Subtraction; of the heading £ S. D., the same as in Addition; and the presence of 4, 12, and 20 superscribed for use when necessary. Here also farthings are dealt with first. Halfpence are always turned into farthings. Set them aside. 1 farthing is above and 2 below. 2 farthings can't be taken from 1. A penny, or 4 farthings, must be taken from the 6 pence, leaving 5 pence, to be noted beside it. The 4 farthings just borrowed are added to 1. 5 is the amount, and 2 subtracted from 5 leaves 3 farthings. So much for the farthings. Then 8 pence have to be taken from 5 pence, the number left above. This is impossible, so 1 shilling, or 12 pence, must be taken from 13 shillings, leaving 12 shillings, which are noted in front of 13. 12 pence added to 5 make 17 pence, and 8 taken from 17 will leave 9 pence, which are put in the answer's place. Now 16 shillings have to be taken from the 12 left above. This can't be done, so 1 pound, or 20 shillings, must be taken from 12 pounds, leaving 11, which must be written beside 12. 20 shillings added to 12 make 32, and 16 subtracted from 32 gives 16 shillings as the remainder. In conclusion, 9 pounds taken from 11, the number left, leave 2 pounds. So the answer or difference is £2, 16s. 9¾d. After completing the work, take a pointer and revise the steps, at the same time impressing these facts—namely, that in the rule no multiplication or division becomes necessary; that 4 is borrowed to augment farthings, 12 for pence, and 20 for shillings. This is an intelligent method of finding the difference, and is by no means difficult to follow, as you will find when the scholars practise the rule on slates, after you have wrought out a number of examples on the board. Its chief point of difficulty occurs when no shillings or pence appear in the upper line. A little care and pointed explanation

£		(20) S.		(12) (4) D.
$^{11}12$	"	$\substack{12\\20\\32}$ 13	"	$\substack{5\\12\\17}$ $6\frac{1}{4}-\substack{1\\5}$
9	"	16	"	$8\frac{1}{2}-2$
£2	"	16	"	$9\frac{3}{4}-3$

will in such a case accustom the pupils to go a step further forward in the borrowing process. For a little the use of the subsidiary figuring should be insisted upon.

Second Method.

In the second but more obscure and cumbrous method the rationale of the various operations which produce an accurate answer can hardly be satisfactorily explained. On this account it may be considered essentially mechanical, and the consecutive items have simply to be remembered. The same sum will illustrate it. A glance will show the manipulations. As before, 2 farthings have to be subtracted from 1. 4 farthings are borrowed and added to 1, thus making 5, which is noted; and 2 subtracted from 5 leaves 3 farthings. Then since 4 farthings, or 1 penny, were borrowed, 1 penny is added to 8 pence, making 9. These figures are put faintly for guidance. 9 pence cannot be taken from 6, so 12 pence are borrowed and added to 6, thus making 18; and now 9 pence are taken from 18, and 9 pence remain. Then 1 shilling is added to 16, making 17, which can't be taken from 13, hence 20 shillings are borrowed and added to 13, making 33, from which 17 must be taken. 16 shillings remain; and because 1 pound, or 20 shillings, was borrowed, 1 is added to 9, making 10 pounds, which subtracted from 12 leave 2 pounds. By this mode of solution, which is exceedingly popular, the steps are both more numerous and inexplicable than in the preceding one. A comparison of the two methods shows that in the former the minuend is diminished, while the same result is produced by increasing the subtrahend in the latter, which has all but lost its primary character through changes of figures. If you prefer to teach the rule by this second system, you will have to dwell upon these points in your demonstration lessons—(1) that 4, 12, and 20 when borrowed are added to the upper line; (2) that, after borrowing, 1 is added to the next figure in the lower line; and (3) that when no borrowing occurs no adding becomes necessary.

£		(20) s.		(12) (4) D.		
12	"	$^{33}13$	"	$^{18}6$	$\frac{1}{4}$	$-{}^{5}1$
$^{10}9_1$	"	$^{17}16_1$	"	$^{9}8_1$	$\frac{1}{2}$	-2
£2	"	16	"	9	$\frac{3}{4}$	-3

Third Method.

There is yet a third method of solution. The same sum will illustrate it. The usual arrangement of farthings being made, 2 farthings are taken from 4 farthings at once. 2 are left and added to the 1 in the minuend; 3 is the result. Then 1 penny is added to 8 pence; 9 is the amount. 9 taken from 12 pence will give 3 pence, and 3 added to the 6 above will make 9 pence, which are put below. To 16 shillings 1 is added, because 12 pence were made use of last time. Now there are 17 shillings. These are taken from 20, and 3 shillings remain, which added to 13 in the upper line make 16 shillings. 1 pound is added to 9, making 10, which subtracted from 12 will give 2 pounds, and thus the difference is found. This method is easy, and has much to commend it. It would certainly be more natural and rational to subtract a penny, a shilling, and a pound from each item in the minuend, than to add each of these to the subtrahend; but the latter operation tends to simplify the solution when shillings or pence are wanting in the upper line. Still you have to teach your pupils but one method, else confusion and error are certain to follow. They should be trained to prove their working by adding the subtrahend to the difference to get the minuend. After they acquire facility through practice in performing the steps mentally, they ought to grapple with such problems as occur in everyday experience, in order that this the proper application of the rule may establish itself in their minds. Drill in minor mental computations will be found a very interesting, invigorating, and instructive form of discipline.

£		(20) S.		(12) (4) D.
12	"	13	"	6 ¼ — 1
^{10}9	"	^{17}16	"	^{9}8 ½ — 2
£2	"	16	"	9 ¾

COMPOUND MULTIPLICATION.

Preliminary Steps.

Compound Multiplication is perhaps more easily taught than Compound Subtraction. As a preparation for it, drill the class in dividing numbers by 4, 12, and 20 (Short Division). You will find it by no means difficult to convince them that a number divided by 20 gives a quotient precisely the same as that obtained by dividing one-tenth of the dividend by one-tenth of the divisor. Then teach them to strike off the 0 of 20, and the last figure of the dividend, after which it is a case of Short Division by 2. Be careful to explain how the remainder is placed. By such a discipline the rule is simplified. Put on the board £26, 15s. $8\frac{3}{4}$d., to be multiplied by 25. Explain that 25 is placed under pence for convenience, and that like Simple Multiplication the work begins at the right-hand side. Tell them, as you point to the parts, that 3 farthings 8 pence 15 shillings and 26 pounds have to be multiplied in turn by 25. Then set the class to multiply 3 by 25 *on slates.* 75 farthings will be the result. Place 75 under 25, and say that as 4 farthings make a penny, you can find the number of pence in 75 farthings by dividing the amount by 4. Do so, thus getting 18 pence, and 3 farthings over. Set these items properly and name them. Then let the class multiply 8 pence by 25, thus getting 200 pence. Explain that 200 has to be added to 18, for both are pence; 218 is the amount. The number of shillings in the sum will be found by dividing 218 by 12, the number of pence making one shilling. Get 18 shillings, and 2 pence over. Name them. The pupils will next multiply 15 shillings by 25, and will find 375 shillings to be the product. Bid them add this number to 18 shillings, thus getting 393 shillings, which will be divided by 20 shillings to get the number of pounds in the amount. 19 pounds, and 13 shillings remaining, is the quotient. Finally, 26 pounds multiplied by 25 will give 650 pounds, which added to 19 make a total of 669 pounds. Gathering the remainders you will arrange them horizontally at the end as £669, 13s. $2\frac{3}{4}$d., which will be the product, and

The Example.

£ s. D.
26 „ 15 „ $8\frac{3}{4}$
25
f. 4 | 75 farthings.
pence 18 — $\frac{3}{4}$
200
p. 12 | 218 pence
s. 18 — 2 pence
375
s. 2~~0~~ | 39~~3~~ shillings
£ 19 — 13 shillings
650
£669, 13s. $2\frac{3}{4}$d.

the computation is finished. While the work is still fresh recapitulate with the aid of a pointer the successive steps. Point out that 4, 12, and 20 taken in this order are the divisors, the farthings found being divided by 4 to convert them into pence, the pence by 12 to get shillings, and the shillings by 20 to find an equivalent in pounds. The successive steps are *multiply*, *add*, and *divide*. Write the word "mad" composed of the initial letters of these words to impress their sequence on the mind. With the aid of the class work out a few more exercises till the principles of the rule have been fairly established, after which it will be impossible to go wrong, no matter how the size or form of the question may vary. A sum such as this imparts solidity to the rule, and gives the pupils a firmer grasp of it than they could get from a model having but one figure as a multiplier. The reason for performing the multiplications separately and afterwards adding them on is that accuracy is thereby insured, all risk of error arising from the misplacement of the figures being obviated. By-and-by the detailed successive multiplications may be stated in the sum itself. A child that can multiply by 25 will have no difficulty in dealing with a multiplier consisting of one or any number of figures, and hence the reason for adopting it in the introductory model computation.

The Steps impressed.

But while the succession of steps in the solution appears natural, the fact that the method is a rational and intelligible one may be impressed by your pointing out that the result is obtained by simply multiplying 3 farthings 8 pence 15 shillings and 26 pounds by 25, thus getting 75 farthings 200 pence 375 shillings and 650 pounds. After Reduction of Money is learned, it will be clearly seen that each of these quantities is reduced in the direction of pounds, and the whole added together. The amount will then be found to coincide precisely with the result obtained by the above more succinct and abbreviated method.

The Rationale of the Rule.

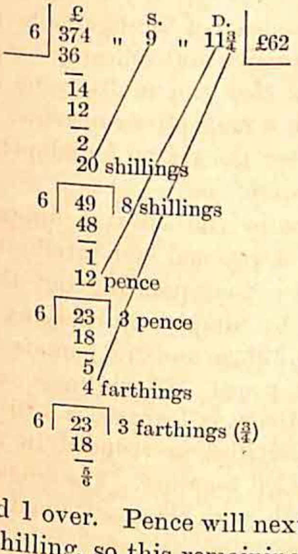
Multiplying by Tens.

The antiquated and tedious mode of multiplying by tens is perhaps nearly obsolete. To a child its manipulations had an air of legerdemain. Working had to be removed and only results retained. This rendered the detection of the precise *locality* of error practically impossible at a glance. Similar operations might be repeated indefinitely, thus increasing considerably the chances of making mistakes. After all, when the pupil did succeed in mastering its rudiments, he was never at ease, under the sense that some gigantic multiplier might yet turn up which it would baffle him to disintegrate.

COMPOUND DIVISION.

The Method.

Compound Division is about as easily taught as Compound Multiplication. By way of introduction explain that, as in the simple rule, a commencement is made at the left-hand side; that the pounds are divided first and the farthings last; that 4, 12, and 20 are multipliers; and that the order of usage is 20, 12, and 4. Write as a model £374, 9s. 11¾d., to be divided by 6. Arrange the statement divisionally, point to 374, and bid the pupils divide this by 6, as in Long Division, *on slates.* Then with their aid do the same on the board, thus getting 62 pounds, and 2 pounds over. 2 pounds have to be turned into shillings. Two twenties will be the same thing; hence 20 multiplied by 2, or 2 multiplied by 20, will give 40 shillings; and as 9 shillings are part of the dividend, they must be added to 40. The amount is 49 shillings. Bid the pupils divide 49 by 6; then do it yourself, and get 8 shillings, and 1 over. Pence will next demand attention. 12 pence make a shilling, so this remaining shilling multiplied by 12 will give 12 pence, and there are 11 to add. The amount is 23 pence, which divided by 6 will give 3 pence, and 5 pence over. Farthings come next, and 4 farthings make a penny. Here are



then 5 fours or 20 farthings, and there are 3 in the dividend. There are thus 23 farthings altogether. These divided by 6 give 3 farthings, and 5 over, which as in Simple Division is represented as $\frac{5}{6}$. Recapitulate the various steps at least twice, laying particular emphasis upon the fact that each group of pounds, shillings, pence, and farthings is to be divided in turn precisely as in Simple Division, and that the remaining pounds are multiplied by 20, the shillings by 12, and the pence by 4. *Point to these as you refer to them.* The quotient in this case is therefore £62, 8s. $3\frac{3}{4}$d. $\frac{5}{6}$f. Explain that the shillings, pence, and farthings of the dividend are to be added as they occur, and that should either of these be wanting there will be nothing to add. At first the pupils should be accustomed to multiply by the different numbers, and afterwards add the extra amounts as separate steps, till the form of the operation is understood. Then they may be allowed to add them in as part of the multiplication process. When they attempt calculations on slates, keep a detailed example before them on the board for guidance. Sums both in Multiplication and Division may be proved by methods precisely analogous to those already advocated in the case of the simpler form of the rules.

COMPOUND RULES ON WEIGHTS AND MEASURES.

Before any attempt is made to explain the working of sums in compound rules involving weights and measures, it will be absolutely necessary that the tables should be thoroughly committed to memory. To facilitate and at the same time make the exercise intelligible, the pupils should see and, as far as possible, handle the weights and measures themselves. Those referred to in Avoirdupois Weight, Cloth and Lineal Measures, might constitute part of the equipment of every school. As in the case of money, explain their equivalents and relative values, and in this way construct the table to be committed to memory as a subsequent and essential mental discipline. The rules involving weights and measures should be taken up as a sort of sequel to the compound rules of money. It will be easy to explain by means of a few well-directed and pointed illustrations that the order of the steps in each case is precisely similar to that in money computations, and that where 4, 12, and 20 were formerly made use of, the various items of the new tables will be substituted and similarly dealt with. A point to observe is that in every sum the whole of the abbreviations are written above, in place of £ s. d., which has hitherto formed the characteristic heading. Most difficulty will be experienced when the pupils have to multiply or divide by 5½ or 30¼, but with careful instruction and patient application even this may be ultimately overcome.

REDUCTION OF MONEY.

In arithmetic, Reduction applies both to money and to weights and measures. In both the processes are cognate. Multiplication and division, with occasional additions, form the bases of the calculations. Reduction of money should be dealt with first. This rule demands a certain amount of reasoning, which is indispensable to a continuance of accurate computations. The child, after an effort of memory to recall a process which produced a certain effect, may arrive at a correct solution in a purely mechanical way. A little pains, however, will simplify the task, and make it more attractive than it is generally allowed to be. While you show the *modus operandi*, be careful to make your reasoning as simple and explicit as possible. The model you set should convince the pupils that some intellectual effort is necessary, and that, too, not altogether of a disagreeable or perplexing character. Although the relative values of the pound, shilling, and penny have already received much attention, it will be useful, by way of introduction, to exercise the class on small mental calculations embracing the florin, half-crown, guinea, and half-guinea. In proceeding to deal with larger sums, you will find it appeal more to the understanding and comfort of the class if you speak of "*finding the number of farthings which will be the same as £12, 16s. 10½d.*," instead of saying, "Reduce £12, 16s. 10½d. to farthings." There is something mysterious and stupefying to a child in the term *reduce*. Such a sum may be

The Example.

wrought out after this method. The amount has to be turned into farthings. It begins as high up as pounds, so it will be well to take them down a step. The next thing less than pounds is shillings. Twenty shillings are in every pound, so if 12 pounds be multiplied by 20, they will be turned into shillings. The pupils will do the multiplying *on slates.* Now place 240 shillings under the line. But there are 16 shillings in the sum, so to get all the shillings together, 16 must be added to 240. This gives 256 shillings. So £12, 16s. has been turned into 256 shillings; and now the question reads 256 shillings and 10½d. Next bring the shillings a step lower. Pence are less than shillings, and 12 make a shilling. Here, then, there are to be 256 twelves. Multiply 256 shillings by 12 pence. Again the work is done on slates. 3072 pence are the result. But there are 10 pence in the sum. Add them to this amount, getting in all 3082 pence. What is the same as 3082 pence? £12, 16s. 10d. of course; so the question is now to turn 3082 pence and a halfpenny into farthings. 4 farthings make a penny, so there are 3082 fours. Multiply 3082 by 4 farthings. The result is 12328 farthings; and a halfpenny, which is equivalent to two farthings, has to be added. The amount is 12330 farthings. So £12, 16s. 10½d. has been turned into 12330 farthings. This turning into another kind is called "reducing," and the rule is known as "Reduction." After this pattern you will carry out the exposition. The pupils are carried intelligently with you at each step, and at any point the computation is self-explanatory. Recapitulate the work two or three times, and get from the

	£ s. d. Turn 12 16 10½ into farthings. 20s.
£12 =	240s. – (16s. 10½d.) Add 16s.
£12, 16s. =	256s. – (10½d.) 12 pence.
	3072 pence – (10½d.) Add 10 pence.
£12, 16s. 10d. =	3082 pence – (½d.) 4 f.
	12328 farthings – (½d.) Add 2 f.
£12, 16s. 10½d. =	12330 farthings.

class that if halfpence had been wanted, a change would have taken place at 3082 pence, which would have been multiplied by 2 halfpence, while 1 halfpenny would have to be added to complete the equivalent. At the close of the exercise a few questions bearing upon the reasons for the various steps of the solution will be of great educative value.

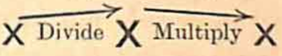
The converse Process.

Retaining an example, such as the above, wrought out fully on the board, you will do well to explain the converse process. The question necessitating it would be, "How many pounds are in 12330 farthings?" which is commonly set as, "Reduce 12330 farthings to pounds." Write the statement as annexed, and explain the working. Farthings are given. They must be turned into something larger. Pence will do. 4 farthings are the same as a penny. Divide by 4 farthings to get the number of fours or pence in the sum. The pupils do this *on slates.* 3082 pence are found, and 2 farthings remain. 2 farthings make a halfpenny. The farthings have now been turned into 3082 pence and a halfpenny. A step above pence is shillings. 12 pence make a shilling. Divide by 12 pence to find how many twelves or shillings are in 3082 pence. The pupils will likewise do this. 256 shillings, and 10 pence over, are found. So 12330 farthings have been turned into 256 shillings and 10 pence. But pounds—the thing required—are higher still than shillings, for 20 shillings make a pound. Divide 256 shillings by 20 shillings to find the number of pounds in the sum. The "nothing" in 20 and the 6 in 256 are struck off. The quotient is £12, and 16 shillings over; so now the whole 12330 farthings have been turned into £12, 16s. 10½d. This is the answer. With the aid of the pointer review the manipulations, and call attention to the fact that each step of the preceding example is simply reversed, Division being substituted for Multiplication. Although to an intelligent child the adoption of a rule as a means to an end will be obvious, you can assist a less brilliant intellect by pointing out,

f. 4	12330 farthings to pounds.
p. 12	3082 pence, 2 farthings (½d.)
s. $2\cancel{0}$	$25\cancel{6}$ shillings, 10 pence, ½d.
	£12, 16s. 10½d.

A mechanical Aid.

as in the case of the above examples, that when big things, such as pounds, are turned into small things, such as farthings, Multiplication is the rule; and when small things have to be converted into big ones, Division has to be employed. These facts could be impressed by the subjoined marks, put on the board and copied by the pupils. Explain that the small cross means small things, and the big one large things. Hence, in going from small to big Division is the rule, but when from big to small Multiplication is necessary.



REDUCTION OF WEIGHTS AND MEASURES.

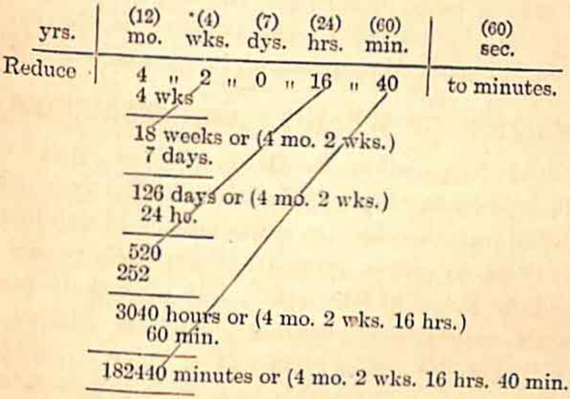
The preliminary Steps.

An essential preparation for Reduction of Weights and Measures is drill on the table immediately under consideration. Subject the class to a succession of random questions, so put as to test not only the pupils' direct knowledge of the table, but also their power of making small calculations bearing upon its aliquot parts. When it is being got up, whether as a home exercise or in school, let the children invariably look at it in order that the application of the eye may make up to some extent for any deficiency in mental power. The progress is not healthy when solutions are arrived at through persistent reference to a convenient table which the child surreptitiously consults under the desk.

Reduction is such that one table thoroughly mastered in its double aspect forms a substantial groundwork, on which the pupils may be expected to rear the whole fabric of weights and measures. Two tables, at most, may be selected to illustrate all the difficulties connected with the manipulations. Time Table and Square Measure, or Avoirdupois Weight and Lineal Measure, will serve this purpose. As in Reduction of Money, the exposition ought to be systematic and complete, and should be repeated till the reasons for the various manipulations, and the general principles upon which the rule depends for its practical utility, have been thoroughly understood and confidently accepted.

The Method.

At the outset you may tell the class that this phase of the rule is very similar to Reduction of Money, with which they are presumably familiar, and that it differs in respect of materials rather than of manipulations. If you elect to open with Time Table, after drilling your class upon it, write it in full in an abbreviated way along the top of the board, as in the subjoined example. The quantitative equivalents should also be written above their respective symbols. This mode of extending the table should be continued till the rule is thoroughly grasped. By getting the pupils to assist in the arrangement of it, you will easily convince them that it is virtually the well-known table horizontally projected. Draw a line under it, and place the data of the sum under their respective headings. Here 4 months 2 weeks 16 hours and 40 minutes are to be turned into minutes. No days are mentioned, so 0 is put under days. Apply the rule. Months are given and minutes are wanted, hence Multiplication is the process. The table shows that the next thing less than months is weeks. 4 make a month, so multiply by 4. The result is 16 weeks; but there are 2 weeks to add, so 18 weeks are the same as 4 months 2 weeks. Write this as in the example. But less than weeks are days. 7 days make a week. Multiply by 7, and the product is 126 days. There are no days given to be added, so 126 days are the same as 4 months 2 weeks. Still



yrs.	(12) mo.	(4) wks.	(7) dys.	(24) hrs.	(60) min.	(60) sec.
Reduce	4 ”	2 ”	0 ”	16 ”	40	to minutes.

4 wks

18 weeks or (4 mo. 2 wks.)
7 days.

126 days or (4 mo. 2 wks.)
24 ho.

520
252

3040 hours or (4 mo. 2 wks. 16 hrs.)
60 min.

182440 minutes or (4 mo. 2 wks. 16 hrs. 40 min.)

less are hours as the work tends towards minutes, which are required. 24 hours make a day; multiply by 24. After increasing the sum by 16 hours, the pupils will tell you that 3040 hours are equivalent to 4 months 2 weeks 16 hours, which statement you will be careful to write in full. Then minutes follow hours. 60 are in every hour. Multiply by 60 minutes, and add 40 minutes. Point out that you have now got 182440 minutes instead of 4 months 2 weeks 16 hours and 40 minutes; and extract from the class that a further multiplication by 60 seconds would have resulted in an equivalent in seconds for the same period. In the usual way, with the aid of a pointer, recapitulate the various steps of the solution till the pupils realize clearly that it is analogous to Reduction of Money. Vary the intricacies of the statements by occasionally dropping some of the consecutive items. Such omissions will occasion no difficulty in the working, because the superscribed abbreviations will regulate the successive steps of the computation. Since the pupils are credited with having an intimate knowledge of the table by reason of the preliminary discipline which they have undergone, it may seem ridiculous to expose it so obviously and fully before them. It should be noted, however, that its function here is to aid intelligent effort, and direct the order of the operations, rather than to supply information. The child should write and use it thus only after he knows it. It should occupy the same place on each slate that it does on the board, till the method of working has been assimilated, and the mental eye is, as it were, trained by much experience to take in at a glance the steps necessary to effect an intelligent and accurate solution. Ultimately, the heading should be obliterated, except that portion of the abbreviations requisite for the identification of the respective data, over which, however, no figures should then be placed.

The converse Process.

The converse process will have next to be explained. Write on the board: "In 186075 minutes how many months are there?" Then below the detailed heading place and work the sum as under-noted. Place 186075 minutes under the heading minutes, and after it write "to months," to determine when the computation is to cease. Get from the class that Division is the process in this instance, for

yrs.	(12) mo.	(4) wks.	(7) dys.	(24) hrs.	(60) min.	(60) sec.

min. 60	186075 to months.
hrs. 24	3101 hrs. 15 min.
dys. 7	129 dys. 5 hrs. 15 min.
wks. 4	18 wks. 3 dys. 5 hrs. 15 min.

186075 min. are 4 mo. 2 wks. 3 dys. 5 hrs. 15 min.

the working is from minutes to months. Hours succeed minutes in order of magnitude, and 60 minutes make up every hour, so 60, the number above minutes, is the divisor. The pupils will do the division *on slates*, getting 3101 hours, and 15 minutes remaining, as the quotient or equivalent for 186075 minutes. Continue in a similar way the succeeding steps, arriving at 24 hours, 7 days, and 4 weeks as the successive divisors, till months are found, and the final equivalent for 186075 minutes is set down as 4 months 2 weeks 3 days 5 hours and 15 minutes. As you slowly revise the solution, endeavour to impress these points:—1. Whatever is given must be first placed under its proper heading. 2. The divisor and dividend must *always* be of the same name. 3. The first divisor is the number above the heading of the given sum. 4. The numbers above the headings, taken in succession, are the divisors till the thing required is reached. 5. In the preceding example the multiplier and product bear the same name. 6. Of special value to backward pupils will be the following statement: In reducing 4 months 2 weeks 16 hours 40 minutes to minutes, because the headings are taken in succession as they move towards the *right hand, Multiplication* is the rule employed. On the other hand, because in reducing 186075 minutes to months the headings are taken as they move towards the *left*, *Division* is made use of.

Points to be noted.

After the above result has been obtained, the class should be set to perform the converse operation of reducing 4 months 2 weeks 3 days 5 hours 15 minutes to minutes. In this way the rule is intelligently taught, and the accuracy of the prescribed exercise satisfactorily tested.

5½ and 30¼ dealt with.

Multiplying.

While the above examples show all that is really functional in reduction, such a table as Lineal Measure or Square Measure contains all that may be considered puzzling in the manipulations. At first 5½ yards and 30¼ square yards cause some annoyance. To surmount the difficulty, a knowledge of fractions, while it would be thoroughly effective, is by no means essential to success, beyond an acquaintance with the fact that ½ means 1 divided by 2, and ¼ 1 divided by 4. Explain at the outset that such a number as 45 multiplied by ½ gives the same result as multiplying it by 1 and dividing the product by 2. The fact should just be accepted meantime till the pupils are familiar with Vulgar Fractions, when they will obtain a more intelligent grasp of it. Lay special stress upon this, that the upper figure of a fraction is a multiplier and the lower a divisor. It might be illustrated on the board as follows— $\frac{1}{2}$ | $\frac{M}{D}$ —to facilitate the remembering of it. For the sake of giving the pupils a speedy and intimate acquaintance with the method of dealing with 5½ and 30¼, practise them specially in multiplying large numbers by these fractional forms, which, being included amidst a number of other operations, occur but seldom, and as a consequence take a long time to master.

Dividing.

The converse operations, namely, dividing by 5½ and 30¼, are not difficult to explain, and may be quite well comprehended. Here also special exercises should be set to insure a rapid knowledge of the steps. In handling such a number as 289 yards to be divided by 5½, you have first to explain how the fraction may be got rid of. The method of doing this entirely depends upon the principle that if both divisor and dividend be doubled or quadrupled the quotient does not change. To prove this in an attractive way, refer to 3 apples, which may be divided equally amongst 6 persons, by giving each half of an apple. Double both the shares and the number of apples, and the same number of persons can be supplied. Doubling is the same as multiplying by 2. Twice one half apple will make a whole apple, and twice 3 apples will produce 6 apples. Here, then, 5½ yards are to divide 289 yards.

yds. 5½	289 yds.
2	2
Half yds. 11	578 half yds.
	52 poles (6 half yds.) or 3 yds.

Whole yards are thus given. Turn them into half yards. 5½ yards are the same as 11 half yards, for 5 yards are 10 half yards, and the remaining half yard added will make 11 half yards. Then 289 whole yards doubled, that is, multiplied by 2, will give 578 half yards. "Doubled" is here used in the sense of doubled in *parts*, not in *quantity*. 578 half yards divided by 11 half yards will give 52 poles and 6 half or 3 whole yards over. This is precisely the same quotient that would have resulted had 289 been divided by 5½ itself. Emphasize the fact, then, that the doubling or reducing of both to halves is but a plan to simplify the division by getting rid of the half. The quotient is the same. Show also, by multiplying both divisor and dividend by 4, thus converting them into quarters instead of halves, that the same result would still have been produced; and finally tell the class that the smallest number is always taken as a multiplier sufficient to facilitate the computation. The following sum—"Reduce 25846 feet to furlongs"—will illustrate the appearance of the computation when fully detailed on the board.

An Example.

After dividing by 3 feet, 8615 yards and 1 foot over form the quotient.

mls. fur. po. yds. ft. in.

ft. 3	25846 to fur.
yds. 5½	8615 yds. 1 ft.
2	2
hf. yds. 11	17230 hf. yds.
po. 40	1566 poles (4 half yds.) 2 yds. 1 ft.
	39 fur. 6 po. 2 yds. 1 ft.

The yards have to be next divided by 5½ yards. Convert the whole into half yards. 5 yards are 10 half yards, and the remaining half added will make the amount 11 half yards. Double 8615 by multiplying by 2, and 17230 half yards are found. These divided by 11 give 1566 poles and 4 half yards over. But 4 half yards are equal to 2 whole ones, which are noted instead. Then follows the division by 40 poles on well-known lines to obtain an answer in furlongs. The fractional operations connected with Square Measure are similar to those of Lineal Measure, quarters instead of halves being dealt with.

Summary.

Thus you see Reduction, while demanding an effort of reasoning, is by no means difficult to teach. In fact, to children its various phases have considerable attractiveness. Keep in mind that much careful and pointed drill on the blackboard should precede the scholars' independent attempts on slates. Several important points have to be observed in order to assist and put weaklings upon their guard against the abundant quibbles and pitfalls connected with the rule. These have been already referred to. The examples expounded should be full and fairly intricate, and the exposition deliberate, progressive, and pointed. At every step the pupils should be freely asked for explanations and reasons. If this be omitted there is apt to be a stagnation of intelligent ideas, a cramping of reasoning powers, and the work, while perfunctorily attempted, may eventually be more retrograde than progressive. Insist upon each multiplier, divisor, product, and quotient being named as soon as figured. This is most essential, as it insures that the operator understands his bearings at any moment, and is the best guarantee that the working shall be as accurate as possible. The successive operations should appear to lead up to each other, the last being, as it were, suggestive of the succeeding one. In this rule in particular the smallest trace of slovenliness is to be denounced, for nothing so much retards the acquirement of a knowledge of a rule as a slovenly or careless habit of statement or figuring. It is dangerous to encourage dividing by the factors of a number with a view to shortening the division. To cope intelligently with the remainders necessitates a knowledge of fractions. When the divisor is greater than 12, and does not end in a cipher, the dividing should be done in the long form as a distinct and separate exercise, and the quotient and remainder, if any, transferred to their proper places in the computation. At the end, when the solution is effected by a series of divisions, the successive remainders should be collected and written in a cumulative and horizontal form. Finally, the pupils must be thoroughly grounded in one table before they are introduced to a new one.

PROBLEMS FOR JUNIOR CLASSES.

A point has now been reached in arithmetic at which a wide field has been opened up for dealing with questions of the problem order. These demand an effort of reasoning which figures treated in the abstract cannot sufficiently supply. The solution of problems has to be taught as any of the ordinary rules which they embody. You can illustrate on the blackboard to the pupils collectively that in dealing with complicated calculations they must observe a definite and methodical system. It will be impossible in this instance to do more than hint at the manner in which a question of the problem class may be treated. Write on the board: "A man gets £40 with which to pay 12 labourers; 8 of them are to get 30s. each, and the rest £2, 2s. 6d. each. What money is left after paying the men?" Read the question slowly twice, and call attention to the fact that so much money has to be given away, so many people to be paid, and some money is to be left over. Then write the solution thus, explaining it as you proceed :—

An Example.

8 people get 30s., or £1, 10s. each, or £12, 0s. (for 8 times £1, 10s. will give £12).
4 ,, £2, 2s. 6d. each, or 8, 10s. (for 4 times £2, 2s. 6d. will give £8, 10s.).
12 people were paid ....£20, 10s.
The man got £40, 0s.
He paid 20, 10s.
Money left £19, 10s.

The above will suffice to show you that before even a simple problem can be understood the facts will have to be succinctly stated, and the successive steps methodically and plainly written. Manipulations must upon no account get mixed up with the reasoning. They should be reckoned apart, and the results properly arranged. It is most unsatisfactory to permit pupils to grapple for solutions through a series of blind operations, some speculative, others tentative. Groping for results in this indefinite, mysterious, and unintelligible sort of way is simply brain power abused and wasted, like steam escaping from a locomotive off its track. Train your scholars to work, having a definite aim in view; and to facilitate and guide the reasoning, make them state the facts in orderly fashion on both slates and paper. When it is asked how many pound packets of tea can be made up out of a box containing a hundredweight and a half, a thoughtful and well-trained child will readily comprehend the import of the question, and the intellectual discipline to which he has previously been subjected will enable him not only to see at a glance that it is simply an exercise in Reduction, but he will also exhibit skill in the accurate manipulation of the figures, which is only a trifle less important than the correct interpretation of the question. Before explaining the solution of a problem, you should make up your mind beforehand as to the simplest and clearest method of dealing with it. Care and ingenuity will both be required to encourage the pupils in their efforts to solve exercises that are intricate and perplexing. Success will very much depend upon your skill as an exponent of arithmetic, which a child having anything but a robust intellect may be trained to tackle with a wonderful measure of success.

PRACTICE.

Finding Aliquot Parts.

To set children to commit to memory the aliquot parts of a pound by way of preparation for the rule of Practice, no special drill in calculating these parts for themselves having been given, is a proceeding very much at variance with sound educational principles. By this time the pupils are thoroughly conversant with the rules involved in the calculations, so that little or no trouble will be required to show them how to find the parts for themselves, as an especial and agreeable intellectual discipline. In their practical application, the parts, while sufficient, are found to be very limited in number. Write the following in perpendicular order upon the left-hand side of the board, and as the pupils discover the results *on slates* fill them in in columnar form.

$\frac{1}{2}$ of £1 is 10s.
$\frac{1}{3}$ of £1 is 6s. 8d.
$\frac{1}{4}$ of £1 is 5s.
$\frac{1}{5}$ of £1 is 4s.
etc., etc.

Although they may readily tell you that 10 shillings are one-half of a pound, you must show them that this arises from the division of one pound by 2, according to Compound Division. In like manner they will at once realize that 6s. 8d.—the equivalent for $\frac{1}{3}$ of £1—is the quotient of £1 divided by 3—the 3 of the fraction. This will be all the more obvious if you recall the fact that the 1 of $\frac{1}{3}$ is a multiplier and the 3 a divisor. Drill them in finding other values in the same way, and supplement the task by making them deal with fractional parts of 10 and even 5 shillings. A child that can do Compound Division will, without much direction, find these money equivalents. While the impression made upon the mind is educationally sound, the knowledge of principles will enable him to do much mentally. A limited and serviceable number of such parts as $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{10}$, etc., of £1, which are of most frequent occurrence in Practice, should be retained, tabulated, and committed to memory—an easy enough task—after the pupils have made the computations for themselves.

The converse Step.

The converse and much more essential process has next to be explained. A sum of money is given, and the exercise is to find what fractional part of a pound it is. Write a list of sums of money on the left-hand side of the board, and add what part of a pound each is as soon as the pupils have performed the calculation *on slates*. When completed, the column will appear as here shown. In this instance the correct result is obtained through Reduction. Ask them to reduce £1 to shillings, and divide the number found by 1, when the part that 1 shilling is of a pound is wanted. As the work proceeds; they should realize that when 2, 4, 5, or 10

1 shilling is $\frac{1}{20}$ of a pound.
2 shillings are $\frac{1}{10}$ " "
4 " " $\frac{1}{5}$ " "
5 " " $\frac{1}{4}$ " "
6 pence " $\frac{1}{40}$ " "
2 " " $\frac{1}{120}$ " "
$\frac{1}{2}$ penny is $\frac{1}{480}$ " "
$\frac{1}{4}$ penny is $\frac{1}{960}$ " "

shillings are to be expressed as fractions of a pound, the pound has first to be reduced to shillings; that when pence are to be stated as fractions of a pound, the latter must be reduced to pence before the division by the given number of pence is carried out. In like manner, when the pound is reduced to halfpence, one halfpenny will appear as $\frac{1}{480}$ of a pound; and a farthing, after a reduction of the pound to farthings, will be set down as $\frac{1}{960}$ part of it. By means of the above discipline you will be laying a foundation for Practice which cannot be overlooked or overestimated. To understand clearly the ground on which they are treading is everything to both pupils and instructor. Practise the scholars in finding for themselves aliquot parts of shillings and even pence. This is good exercise. For instance, they should be able to calculate what part of 10 shillings a half-crown is. Point out that the same general rule determines the fraction—namely, the reducing of the two items to things of the same kind or name, it may be pence, halfpence, or sixpences, and the subsequent dividing of the number constituting 10 shillings by the number in 2s. 6d. Lay down emphatically the injunction that *both divisor and dividend must first be reduced to the same thing*, and prove that the same result will obtain, no matter what the given amounts are reduced to. They should also be exercised in making mental calculations of aliquot parts of likely and useful minor amounts. It will be practically valueless to ask at this time that a limited group of parts set in the shape of tables should be committed to memory, because so long as the pupil has an intelligent grasp of the method of calculating them there is no need for burdening the memory with information which a moment's consideration or brief computation can supply.

The Rule.

After the foregoing grounding, you may proceed to teach Practice—a rule by no means difficult to comprehend, provided its various steps are handled methodically and in proper sequence. A tolerably complete sum might be put on the board as an introductory model. Write on the top of the board, "Find the price of 365 things

An Example showing the Method.

at £2, 16s. 3¾d. each," and extend the solution as it is here represented. The word "price" is used in preference to "value," which at first neither sounds so familiar nor conveys a sufficiently precise idea to the pupil. After setting the question, proceed to convince your class that *£365 is the price of 365 things at £1.* This is the first and all-important step. Repeat it again and again, for unless it is grasped now and for ever you cannot hope for intelligent progress. When you have evidence that no child has any dubiety about the validity of the reasoning attaching to this initial step, show in the next place that, after multiplying 365 by 2, you are justified in accepting £730 as the price of 365 things at £2 each. The price of 365 things at £2 each has thus been found. Tell the class, in the next place, that you are now to find the price of the same number of things at 16s. each, and that as £365 is the price of 365 at £1, the 16s. may be broken up into parts. 10 shillings they find to be ½ of £1; so the price of 365 things at 10s. will be the half of that of 365 things at £1. Write the side statement, and let the pupils perform the division of £365 by 2, thus getting £182, 10s. as the price of 365 things at 10s. 6 shillings remain; but as they will not divide either £1 or 10s. evenly, a less number must be taken. 5 shillings are ¼ of £1, or ½ of 10s. It is easier to halve the price of 365 things at 10s. than to find the fourth part of the price of 365 at £1. Be careful, however, to find both quotients to show that the results are precisely the same, that the choice is optional, and that the handiest and simplest course

Find the price of 365 things at £2, 16s. 3¾d. each.

365 pounds = the price of 365 things at £1.
2

			£730	0	0	=	price of 365 at £2.
16s.	10s. = ½ of £1	=	182	10	0	=	" 365 at 10s.
	5s. = ½ of 10s.	=	91	5	0	=	" 365 at 5s.
	1s. = ⅕ of 5s.	=	18	5	0	=	" 365 at 1s.
	3d. = ¼ of 1s.	=	4	11	3	=	" 365 at 3d.
	¾d. = ¼ of 3d.	=	1	2	9¾	=	" 365 at ¾d.
			£1027	14	0¾	=	" 365 at £2, 16s. 3¾d.

should be taken. £91, 5s. will be set down as the price of 365 at 5s. 1s. is left. It is $\frac{1}{20}$ of £1, $\frac{1}{10}$ of 10s., or $\frac{1}{5}$ of 5s. The pupils will suggest these parts, and should, in fact, be set to find the same result by all three. Having done so, they should be told that as $\frac{1}{5}$ of 5s. will be the easiest to deal with, it will be accepted to form the statement. Here point out the exhaustion of 16 shillings, and that the sum of £182, 10s., £91, 5s., and £18, 5s. should be the price of 365 things at 16s. Now come to the pence, and find the price of 365 things at 3d. each. The price of 365 at 1s. is £18, 5s.; so, as 3d. is $\frac{1}{4}$ of 1s., the price of 365 at 3d. will be the fourth part of £18, 5s. After dividing this amount by 4, the pupils will get £4, 11s. 3d. as the price of 365 things at 3d. Finally, $\frac{3}{4}$d. will be recognized as $\frac{1}{4}$ of 3d. The price at 3d. was £4, 11s. 3d.; so this divided by 4 will be the price of 365 at $\frac{3}{4}$d. This will give £1, 2s. $9\frac{3}{4}$d. as the quotient. Pause at this point, and review the various results to convince the pupils that the whole amount, £2, 16s. $3\frac{3}{4}$d., has been overtaken, and that the aggregate of the quotients will be the price of 365 things at £2, 16s. $3\frac{3}{4}$d. Let the pupils add them. £1,027, 14s. $0\frac{3}{4}$d. will be the grand total. Such is the solution by Practice. It is obvious that in the treatment of the rule two points have to be kept in view. The pupils have firstly to acquire perfect familiarity with what may be called the formula of the manipulation; and secondly, they must be trained to exercise their intellectual and reasoning faculties in the selection of the items of the solution. After one or two expositions on the board, the former should be satisfactorily impressed. In the latter consists the main difficulty connected with the rule. Let the pupils put simultaneously on slates an exact copy of the example on the board in order to familiarize them with the formula and general arrangement of the work. Then, with the pointer, revise the steps again and again, and question them freely as you proceed to test their attention and uptake. Work a few more exercises on the board, and steadily enlist their attentive co-operation and suggestions in carrying out the manipulations. Solve the same problem in two or more ways

Two Things to note.

Use different sets of parts each time. This will give encouragement by convincing the class that the process is not stereotyped, and that the exercise of reasoning is really interesting, while in the selection of parts a free hand is allowed. This form of task frequently assumes a more complicated aspect which necessitates more care and judgment. To find the price of 489$\frac{3}{5}$ yards of cloth at £2, 17s. 11$\frac{3}{4}$d. per yard will involve the main points of difficulty likely to arise, with the exception of those which present themselves when fractional parts of a farthing occur in connection with the constituent quotients. A knowledge of Vulgar Fractions is then essential. In dealing with the above example, the pupils have to be told that 489 yards have to be handled exclusively of the $\frac{3}{5}$ yard. The parts which are equivalent to the price of 489 yards at 17s. would be 10s. equal to $\frac{1}{2}$ of £1, 5s. equal to $\frac{1}{2}$ of 10s., and 2s. equal to $\frac{1}{5}$ of 10s. Show that 2s. may be conveniently taken as a part of 10s., since 2 does not divide 5s. evenly. Draw an arrow line to show that it is the fifth part of the price of 489 yards at 10s. that is found. A similar deviation from the direct succession will occur in the case of 11d. The parts here will be, 6d. equal to $\frac{1}{4}$ of 2s., 3d. equal to $\frac{1}{2}$ of 6d., and 2d. equal to $\frac{1}{3}$ of 6d., because it forms no exact fraction of 3d., and 6d. is the first amount that it evenly divides. $\frac{3}{4}$d. will also have to be taken as $\frac{1}{4}$ of 3d., and the price of 489 at 3d. divided by 4. After pointing out that these steps represent the price of 489 yards at £2, 17s. 11$\frac{3}{4}$d., call attention to the fact that as the price of a yard is £2, 17s. 11$\frac{3}{4}$d., $\frac{3}{5}$ of a yard will cost $\frac{3}{5}$ of this sum. According to previous instruction, 3 of $\frac{3}{5}$ is a multiplier and 5 a divisor; so £2, 17s. 11$\frac{3}{4}$d. will have to be multiplied by 3, and the product divided by 5. The quotient will be the price of $\frac{3}{5}$ of a yard at £2, 17s. 11$\frac{3}{4}$d. per yard. The items should now be added to get the answer. As in former examples, put all sorts of questions bearing upon the steps of the calculation to make the pupils thoroughly conversant with their precise nature, and obviate the risk of their stumbling over knotty points when they essay to effect solutions independently. The value of the

Another Form of Question.

fractional part of a yard is added along with the constituent quotients, because adding it to their aggregate as a subsequent separate step seems more likely to multiply the risk of error than increase the chance of accurate computation.

HINTS ON TEACHING PRACTICE.

A few general points upon which success in teaching this rule largely depends may now be stated.

After working out an example, and referring pointedly to the precise steps of the solution, you might wipe it off the board, and set the pupils to repeat the operation for themselves on slates; or you might get them to do it over again on the board, while you carry out their suggestions, interrogate, and regulate them. When the working of the pupils is clumsy, you should indicate on the board the neatest and clearest mode of dealing with the items. If the rule be taught through large and comprehensive examples, the task will be found agreeable enough; but when a knowledge of it is obtained by the accumulation of piecemeal calculations, it becomes a weariness to the pupil. The more a rule is studied in driblets of increasing difficulty, the less opportunity the scholars have of getting a proper grasp of the broad principles upon which perfect familiarity with it depends. At first, in dealing with a sum in which no pounds appear in the price, adhere to the rule, and multiply the pounds forming the price at £1 by no pounds, thus getting a few ciphers in the product's place. While even the smartest pupils might be asked to do this, the less gifted ones should invariably do it, till the absurdity of the step becomes obvious, and you find that perspicuity is by no means increased by putting ciphers in place of pounds. Draw a line under the number which is accepted as the cost of the articles at £1 each. Vary your illustrative exercises by occasionally dropping shillings, pence, or farthings in the price given. This tests the pupils' ability to find difficult parts, and is a healthy exercise involving concentrated thought. But should neither pounds nor shillings occur in the price, the pence are broken up and handled as parts of a shilling. Show that in such a case the answer will be in shillings, which can finally be reduced to pounds.

Illustrate the rule that, in short, if parts of a pound are taken, the answer will be in pounds, if parts of a shilling, the result will be in shillings, and so on. While you endeavour to explain each step clearly and orally, let everything be fully written, and exact the same care and fulness of details from the pupils when they perform the solutions on slates or paper. The placing of the successive quotients is very important. The money equivalent of the part stated in the margin should appear precisely in the same horizontal line with it. Neglect of this results in confusion and mistaken dividends, which would have been all but impossible had the rule been carefully attended to throughout. It will also tend to insure greater accuracy if you insist upon lines being drawn between the fraction in the margin and the quotient to be divided by its denominator. While a part may be taken of any preceding item, provided it forms a suitable fraction of it, explain that if possible it should be taken out of the statement last written. Until the pupils are well advanced, they should not be permitted to take parts such as 6s. 8d., and 3s. 4d., etc., which call for reasoning powers of some maturity. Every now and again work out a few exercises on the board. The operations in Compound Division should be performed away from the sum itself, and the quotients merely put in position when found. This keeps the steps clear and methodical, and at the same time precludes the possibility of error likely to arise from a more abbreviated and mental exercise. Although Compound Multiplication or Simple Proportion affords an easier and less elaborate and perplexing method of solution, if Practice be the prescribed channel, it should be insisted upon. Compound Multiplication may, however, be adopted as a means of testing the value of a solution by Practice when such a thing is possible. Practice is a beautiful rule. The steps can be so lucidly and methodically arranged and comprehended that a mechanical form of solution, however accurate, is inexcusable. Again, although the facilities for satisfactory and rapid computation

Practice as a Rule.

by means of Compound Multiplication and Simple Proportion tend to a great extent to limit the practical application of Practice, there is no reason why its merits, which are not few, should be overlooked or depreciated, since when methodically taught it supplies a very valuable and interesting intellectual discipline.

Although the rule Bills of Parcels contains much that is akin to Practice, it often includes many items that can best be solved by Proportion, so this rule, in its simple form, may next be considered.

SIMPLE PROPORTION.

Ratio and Proportion explained.

Before Simple Proportion as an arithmetical rule can be intelligently understood, the principles upon which it hinges ought to be deliberately and plainly indicated. While the terms *ratio* and *proportion* can at present be hardly grasped in point of meaning by the pupils, the results to which they point may be easily comprehended. Put on the board two numbers, such as 6 and 3, and after dividing 6 by 3 explain that 2, the quotient, is called the "ratio" of the two numbers. Impress the fact that a ratio is a quotient, and that to get a ratio two terms are necessary. Write other numbers, and let the pupils name the ratios. Then place in a horizontal order four numbers thus: 10—5 | 8—4. The scholars will divide 10 by 5, getting 2, and 8 by 4, also getting 2. 2 in each case is the ratio. Call attention to the fact that the two ratios are the same. After the pupils see this, explain that the four numbers, 10, 5, 8, and 4 set in this order are said to be in "proportion." Proportion then implies four terms, whereas ratio has to do with only two. Dwell upon the equality of the ratios to establish a proportion. Write *ratio* and *proportion* that the pupils may remember the names, and proceed to explain that the numbers 10, 5, 8, and 4 are spoken of as *the four terms of the proportion;* 10 is the first term, 5 the second, 8 the third, and 4 the fourth. Now show the reading of the proportional quantities. 10 bears the same relation—that is ratio—to 5 that 8 bears to 4; or shortly, 10 is to 5 as 8 is to 4. When this has been written, put below it 10 : 5 :: 8 : 4, calling attention to the dots used instead of the words in the ordinary statement. Hence "is to" will be represented by : and "as" by :: The annexed statement should appear on the board as the result of your exposition. Revise it a few times, and substitute other numbers in order that the precise idea implied in *ratio* and *proportion* may be clearly comprehended. The next step will show proportions in which the denominations are attached to the quantities. Using the foregoing numbers, write them thus—10 yards : 5 yards :: 8 shillings : 4 shillings. From this disposition impress the fact that *the first and second terms of the proportional setting must be of the same name, and that the third and fourth must likewise be of the same name.* Point out that although the denominations are attached, the ratios remain unchanged. Follow this up by calling attention to the result of the proportional arrangement of the numbers. Rewrite 10 : 5 :: 8 : 4. Note their ratios once more, and by drawing connecting lines impress the point that the first and fourth terms multiplied together give the same product (40) as the second and third multiplied together. This will lead up to the practical rule that *the second and third terms multiplied together produce a result which, divided by the first term, gives the fourth.* After showing that this is the case, tell them that what is called Simple Proportion is really the finding of the fourth term after the first three have been given and stated. Again recapitulate the foregoing successive explanations, and put questions orally to test the pupils' comprehension of them, and pave the way for an intelligent application of the rule. The stereotyped formula for working proportion sums might next be taught. A number of statements should be written on the board, one of which might be—2s. : 6s. :: 3 yds. : 9 yds. These numbers

1st term.	2nd term.	3rd term.	4th term.
10 — 5 Divided by 2 (Ratio).		8 — 4 Divided by 2 (Ratio).	

10 $\boxed{\text{is to}}$ 5 $\boxed{\text{as}}$ 8 $\boxed{\text{is to}}$ 4

or 10 : 5 :: 8 : 4

Proportion.

The Formula for Solutions.

A Specimen Problem.

are in proportion. The fourth term is found in this way. 3 yards, the third term, are multiplied by 6, the second term; 18 yards are the product, which divided by 2, the first term, gives 9 yards as the fourth term. It is a number of yards that is wanted in this exercise, because 3 yards are the third term, and the fourth must be of the same name or kind as the third. This will be easily assimilated. Now proceed to write a problem such as the following:—"If 3 yards 2 quarters cost 10s. 6d., what will 6 yards cost?" Read the question two or three times, and call pointed attention to these facts:—1. Three quantities are given—underline them. 2. Two of them are of the same kind or name—namely, 3 yds. 2 qrs. and 6 yds.—while a third, 10s. 6d., stands by itself. 3. The two sets of yards form the first and second terms of the statement, the third is 10s. 6d., and the task is to find the fourth term in money, which as a divisor of the third will produce a ratio the same as that resulting from the division of the first term by the second. After dwelling upon these points, tell the class that the first part of the work is to arrange the three given terms properly, so as to produce the correct fourth term. This is called "stating the terms." The next step is the manipulation of the solution to find the right answer. The stating has to be done first. Show that for two distinct reasons 10s. 6d. is the third term. The remaining quantities of cloth are two in number, so it is likely that they will form the first and second terms, which must bear the same denomination. Then 10s. 6d. is left by itself, so it is naturally the third term. Lay great stress also upon the fact that the thing or *denomination wanted is invariably the third term*, which has to be detected and placed first. Then proceed to arrange the data under the well-known and very serviceable headings, *Given* and *Wanted.* Let the class grasp that 10s. 6d. is given as the price of 3 yds. 2 qrs., and that what is wanted is the

Given.	Wanted.
3 yds. 2 qrs.	— 6 yds.
10s. 6d.	— × (4th term).

yds. qrs.		yds.		s. D.		s.
3 2	:	6	::	10 6	:	18
4 qrs.		4 qrs.		24		Ans.
14 qrs.		24 qrs.		14 | £12, 12s.		
				Ans. 18s.		

price (mark its absence by × —4th term) of 6 yds. At this point an exercise of reasoning comes in which no mechanical device can well supplant or be substituted for. Hence the necessity for clear and deliberate exposition fit for the juvenile mind to grasp. In this case the effort will not be great. As 10s. 6d. stands without a part to balance it in the wanted column, it refers to the thing required, and so is set down as the third term. 3 yds. 2 qrs. and 6 yds. are next to be considered. It is given that 3 yds. 2 qrs. cost 10s. 6d., the question is what will 6 yds. cost? If the child grasps the argument, which he will if by pointing to the items you keep his eye and intellect riveted on them, he will be dull indeed if he does not tell you at once that 6 yards will cost more than 3 yds. 2 qrs. *More* is the catch word. Make it and its opposite *less* the keys to the arrangement of the first and second terms. Write on the board this rule to be committed to memory after the pupils understand its value and purport :—

Rule for Stating.

If *more* wanted, *more* is 2nd term,
If *less* wanted, *less* is 2nd term.

Now apply the rule in stating the terms. As shown above, 3 yds. 2 qrs. will be the first term, 6 yds. the second, and 10s. 6d. the third, while × will be the fourth. Let the pupils next read the statement simultaneously, putting in "is to" and "as" as occasion demands. Now that the stating has been fixed, the working has next to be dealt with. According to the rule already laid down, the third term, 10s. 6d., has to be multiplied by 6 yds., and the result divided by 3 yds. 2 qrs., to effect a correct fourth term. As you point to the data the pupils will be satisfied that the multiplication by 6 is easy enough, but perplexity will be manifested when you speak of dividing by 3 yds. 2 qrs. ; it looks so like an impossibility. They are now ripe to be taught how to do it. Explain that two very small exercises in Reduction are necessary in such a case—in short, that 3 yds. 2 qrs. and 6 yds. have each to be reduced to quarters. The pupils will do the work *on slates*, after which you will do it on the board, thus getting 14 qrs. instead of 3 yds. 2 qrs. and 24 qrs. in place of 6 yds. The fact that by this step the proportion is not altered will be understood later on. The scholars, using slates, will multiply 10s. 6d. by 24, and divide the product (£12 12s.) by 14, after which you will show the same manipulations on the board. The answer will be 18s., which may then be put in the place of the fourth term. Revise the whole of the work, and do so very slowly, in order that the scholars may have time to think and, as a consequence, comprehend. Simple phraseology fosters a steady concentrated effort of thought. After you have done, you might show how the correctness of the operations—*not of the stating*—may be proved by multiplying the extreme terms together to produce the same result as that found by multiplying the two mean or middle ones together. Further emphasize these facts, that *the first and second terms must always be reduced to the same name before the actual solution is proceeded with*, and that the same result will appear, no matter what the terms are reduced to, so long as the relative values of the terms are maintained.

Another Form of Problem.

When the question assumes this form it is more confusing: "How far can 3 tons 2 quarters be carried for £1, if 12 cwt. can be carried 15 milès for the same money?" The introduction of the cost is the stumbling-block. Arranged under headings, the question will appear as follows :—

Given.	Wanted.
12 cwt. 15 miles. (for £1.)	3 tons 2 qrs. × (for £1.)

tons.	cwt.	qrs.		cwt.		miles.		miles.
3	0	2	:	12	::	15	:	$2\frac{118}{121}$
20 cwt.				4 qrs.		24		
60 cwt.				$\cancel{48}$ qrs.		60		
4 qrs.				24		30		
$\cancel{242}$ qrs.						$121\overline{)360\text{ miles.}}$		
121								

Ans. $2\frac{118}{121}$ miles.

Put £1 under both headings to show that it is a common quantity, and point out that in such a case it forms no part of the stating. 3 tons 2 qrs., being a heavier quantity, will be carried a less distance than 12 cwt. for the same money. The less, or 12 cwt., will be the second term. After stating, point to 2 qrs. as being the lowest denomination given in either of the

Cancelling.

Its Value and Effect illustrated.

terms; hence the first and second ones must be reduced to quarters. The first term thus transformed will appear as 242 qrs., and the second as 48 qrs. With a view to lessen the amount of figuring in the solution, "cancelling" might here be explained. Show the class that 2 will divide 242 and 48, leaving in each instance no remainder, and giving 121 and 24 as the quotients. Tell them that this step reduces the working, but that the terms when divided must show no remainders. Write the word "cancelling" to keep them in mind of it. By-and-by it should be carefully demonstrated that only the first and second and first and third terms can be cancelled or lessened without altering the proportion. To convince them that while cancelling may simplify the working it by no means alters the result, solve the above problem first in full, and immediately after with cancelled terms. A short and simple demonstration will illustrate the effect of thus reducing the terms. The statement given is 3 : 6 :: 1s. When this is solved, the fourth term is found to be 2 shillings. Divide the first and second terms by 3, thus getting 1 : 2. With these the same result is produced.

Uncancelled 3 : 6 :: 1s. : 2s.
Cancelled 1 : 2 :: 1s. : 2s.

As cancelling is a somewhat dangerous operation when the terms are involved or large, you will have to exercise discretion in allowing dull or careless pupils to indulge in such a luxury. In the end, it will perhaps be safest to let the smartest ones only cancel, and that too after they have acquired facility in stating and solving a variety of problems.

Another Arrangement of the Data.

There is often a deal of mystery associated with Proportion, which demands the utmost attention and every effort of reasoning power of which young minds are capable. There is another method of arranging the items of the problem as a preliminary exercise, in order that observation may aid the intellect and backward pupils derive benefit and encouragement. This problem will illustrate it: "If 5 acres 2 roods cost £20, 10s., what will 40 poles cost?" The things of the same denomination twice stated are put by themselves at the left-hand side of a vertical line and headed *double terms*, because there are two of them. On the other side of the line, the amount once mentioned, along with the cross mark indicating the fourth term, is placed under the heading *single term*. Here the presence of £20, 10s. in the single term column is sufficient guarantee that it is the third term. £20, 10s. is placed *exactly opposite* or in a line with 5 acres 2 roods, to which it refers. This is an important point to observe in arranging the items. But as 5 acres 2 roods cost £20, 10s., 40 poles will cost less; and hence the less, or 40 poles, will appear as the second term of the statement. After the first and second terms have been reduced to the same name, the whole may conveniently be set in fractional form. Thus £20, 10s. will be followed by 40 poles, with the sign of multiplication between them; and 880 poles will appear under a horizontal line as a divisor. If desired, the cancelling may be shown still lower down, and thus a final statement in its simplest and most workable aspect will be obtained. You will be careful to note that it is seldom or never that the third term requires to be reduced. There is no necessity for so doing if antecedent rules have been thoroughly mastered. At the same time, the quotient forming the fourth term may, if necessary, be reduced to something of a higher denomination, with a view to obtaining a more complete answer.

Double terms.	Single term.
5 ac. 2 ro. 40 po.	£20, 10s. ×

$$\begin{array}{l} \text{ac. ro. po.} \\ 5\ \ 2\ :\ 40\ ::\ \pounds 20,\ 10\text{s.}\ :\ \times \\ \underline{4\text{ ro.}} \\ 22\text{ ro.} \\ \underline{40\text{ po.}} \\ 880\text{ po.} \end{array}$$

$$\frac{\pounds 20,\ 10\text{s.} \times 40}{880}$$

(Cancelled) $$\frac{\pounds 20,\ 10\text{s.} \times (\cancel{40})\ 1}{(\cancel{880})\ 22}$$

or $$\frac{\pounds 20,\ 10\text{s.} \times 1}{22}$$

HINTS ON TEACHING PROPORTION.

No matter what mechanical devices you adopt to aid the intellect of the pupil, the problems are so varied under Rule of

Three, as Proportion is sometimes called, that no single arrangement will be found applicable to every case, although it may be available for most cases. The trials which children at first experience in dealing with Proportion in large measure arise from the necessity for an effort of reasoning or logical inference. Keeping this before you, you will in teaching lay particular stress upon these points. Start with the nature of Proportion and the function of the rule; then explain the handling of the three necessary terms of the problem with a view to arriving at a fourth. The computation resolves itself into three distinct phases, which have to be taken up in succession—namely, (1) interpretation of the problem; (2) stating of the terms; (3) the working or manipulation of the figures. A sound knowledge of the rule implies ability to perform all three steps in succession. Nothing but much practice and persistent application will conduce to familiarity with the requirements of the rule. No hope of success can be held out unless the teacher is at the utmost pains to explain the precise characteristics of the exercise, and unless the pupils adhere to his injunctions in their sequence and entirety. Much practice in completing the proportion in such an exercise as this, $6 : 12 :: 10 : \times$, will be unnecessary. This is but a pastime in alternate multiplication and division, involving the very minimum of intellectual effort, so that little or nothing will be gained for the time spent in working out a column of such easy and stereotyped computations. The order of the steps of the working is simple enough and very easily remembered; so it will be well, after explaining the nature of proportional numbers, to take the subject firmly and boldly in hand, and at once proceed to the demonstration of the rule in a methodical and unabridged form. Encourage the pupils from the very first to join in your reasoning, and at every step endeavour to enlist their united sympathy and hearty co-operation. Thus their comprehension of the rule will develop under your superior guidance, and by-and-by it will be found less difficult to master than it appeared at first sight. As the mechanical or less exacting portion of the calculation is but drill in rules already learned, there is little excuse for a child's being unable to perform them accurately; but sympathy should be extended to him when he fails to state the terms correctly even after much application and practice. Reasoning and inference, necessitating vigorous concentration of thought, are a heavy strain upon a child's mind; and just as pupils differ in point of mental activity and intellectual capacity, so some will find the greatest difficulty in interpreting a statement which others will accurately comprehend at the first reading. Detect the weakling, take him tenderly and affectionately in hand, and by question and explanation endeavour to let in the light where all is obscurity and mystery.

As there is nothing more antithetical to satisfactory progress than a slovenly habit of writing the problem, insist upon it on every occasion that the pupils write every word of the data of the question.

Since it is easy to identify the third term, after which the correct arrangement of the first and second terms appears to be the only difficulty, there is ample scope for a child to state them by chance and yet accurately. Take care not to be deceived by appearances. Put his knowledge to the test by challenging him to give his reasons for adopting a particular disposition of the terms. From the classification of problems as *direct* and *inverse*, pupils are apt to imagine that there are two distinct kinds of Proportion. A knowledge of such a classification may be interesting in itself, and may be noted by the way, but as a means to an end it is of little or no practical utility.

BILLS OF PARCELS.

When Rule of Three has been fairly mastered, "Bills of Parcels" will be found very easy to teach. Begin at the beginning, and explain the exact nature of the rule. The prefatory exposition, which should be of an attractive and homely kind, should embrace the meaning, composition, and function of a "bill." Most of the pupils will be familiar with the buying of a basketful of articles at a shop, and they will also remember that the merchant handed them a slip of paper on which each article with its price was noted.

The Nature of a "Bill."

The money paid was the sum of all the prices put together. Produce some such common aggregation of well-known items. Show it to the scholars, that they may recall the nature of the document; then, turning a map beside you on the wall, expose to their full scrutiny the same bill arranged on an exaggerated scale on the back of it. Proceed to explain its composition and the order of its particulars. Using a pointer, call attention to the fact that the person who buys is first named; then, with the words "bought of" before it, comes the name of the merchant or seller; and after the date of purchase there is placed in detail the list of articles bought, with their prices neatly arranged as an Addition sum. When the values are added together and the amount paid, the merchant writes the word "paid" and signs his name. He may also add the date of payment. Having thus indicated the formalities, explain that such an arrangement constitutes a Bill of Parcels; and that the solution of such a bill consists not only in stating names and dates, but, what is much more essential, in calculating the prices of the different articles, and then adding them correctly together. It is very important that the scholars should be made perfectly familiar with the appearance and arrangement of a bill, so that this abnormally large model might be suspended near them, that they may drink in its details at leisure. It ought also to contain a list of common articles such as children may be sent to buy at a draper's, grocer's, baker's, or butcher's shop, both buyer and seller being persons familiar to the class. This brings it home to them, and makes them more interested in the work. It will also be satisfying to explain that the rules used in the solutions are precisely those to which they have already been accustomed. In view of this fact, take care to let the children work out the computations, while you simply give directions and make necessary explanations. It might be useful to set them to copy the large model on slates to give them a grasp of its nature and general details. The subjoined bill of articles might then be written on the board, and the calculation effected with the aid of the class:—

Specimen of a Bill.

		£	s.	d.
42 yards of cloth, at 3s. 6d. per yard.	=	7	7	0
168 yards of tape, at ½d. per yard.	=	0	7	0
2 yards 2 quarters of silk, at 15s. 6d. per yard.	=	1	18	9
12 yards of flannel, at 9¼d. per quarter.	=	1	17	0
		£11	9	9

Ask a pupil to read the items, and then refer to the space after each, into which the money equivalent is to be inserted. It will encourage the pupils if, before commencing the solution, you write on the top of the board, "*Compound Multiplication*, *Practice*, and *Simple Proportion*;" and tell them that by one or other of these three well-known rules a calculation is effected. Referring to the first item of the bill, you will have little difficulty in getting from the class that Multiplication is to be adopted; for, since 1 yard costs 3s. 6d., it is evident that 42 yards will cost 42 times 3s. 6d. The pupils will make the calculation *on slates*, and you will then note the product, £7, 7s., after the item of the bill. Similarly 168 yards, at ½d. per yard, will also suggest Compound Multiplication. Let some make the computation, while others, who realize that 168 halfpence represented in a higher denomination is the answer, may effect the solution by Reduction. Place 7s. in the proper place. Then 2 yards 2 quarters, at 15s. 6d. per yard, will be dealt with. This is more difficult. Show the class that it reads thus: "If 1 yard costs 15s. 6d., what will 2 yards 2 quarters cost?" They will readily find an answer by Proportion. £1, 18s. 9d. you will place under 7s. Point out also that as 2 quarters are the same as a half-yard, the price may be easily calculated by multiplying 15s. 6d. by 2½ yards. The last item demands a still higher effort of intellect. The price of a quarter, not of a yard, is given. Call special attention to the absurdity of multiplying 9¼d. by 12, and show that this would have been correct had 9¼d. been the price of a yard instead of a quarter, or had it been 12 quarters in place of 12 yards. Make it clear that in this instance, as the price of a quarter is given, 12 yards might be converted into 48 quarters, after which the given price might be multiplied by 48; or that 9¼d. might be multiplied by 4 to get the cost of a yard, and the product multiplied by 12 yards to get the desired amount. But as these steps are virtually summed up in a solution by Proportion, you may write the statement as a problem in this rule, and bid the pupils find the fourth term on slates. The answer will be £1, 17s. The successive items being thus handled, the scholars may be set to find the total amount by Compound Addition. £11, 9s. 9d. is the price of all the articles put together, and, in so far as the working is concerned, the bill is completed. It is certainly very requisite and useful that the pupils should grasp the form of the bill in all its fulness and perfection; but the insertion of all the minutiæ at each calculation will absorb too much valuable time. Be satisfied, then, when you are assured that every one knows the correct bill form, and can state it when he is asked to do so. You might explain that, when the bill amounts to two or more pounds, a penny stamp has to be affixed as a legal guarantee that the money has been paid. In the pupils' case, the word "stamp" should be written to indicate the necessity for such a thing. But these are details that are easily attended to; it is the correct solution of the items that is the main point at issue while the rule is being taught.

A convenient Method of solving a "Bill."

Work out, with the help of the class, a few more such exercises, and do not be too lavish in introducing knotty points at the commencement. Through these examples on the board you will have proved conclusively that generally by one or other of the aforenamed rules the work may be accomplished. The more intelligent the pupil is, the more keenly and effectively will he bring his mind to bear upon the facts, while the steps of the solution will become easy and the working minimized. But although an observant eye and a clear intellect are desirable and necessary, a certain amount of reasoning has to be brought specially into play—an amount of which every child is not capable, which all have not in equal degree, which some are slow to cultivate, and others are never able to command. In view of this, you will exercise your ingenuity to arrive at a method which, while it may be somewhat mechanical in appearance, is yet sound in principle and within the reach of every child, as enabling him, with the minimum of intellectual effort, to make accurate computations, no matter how peculiar or intricate the items of the bill may be. In arithmetic, of all branches taught in school, children are least likely to hit upon plans which tend to simplify the working of specific rules; hence the discovery and exposition of such ways and means must emanate from the more fully-developed intellect of the instructor, to be assimilated and applied by the learner.

The following mode of dealing with the separate parts of a bill will be found invariably applicable and exceedingly serviceable. Write the items on the board, and in a space after each arrange the particulars as in the annexed example :—

$\overset{(2)}{\underset{(\text{M.})}{\text{26 lbs.}}}$, at $\overset{(1)}{\text{1s. 4d.}}$ $\overset{(3)}{\underset{(\text{D.})}{\text{per lb.}}}$ $= \left(\frac{\text{1s. 4d.} \times \text{26 lbs.}}{\text{1 lb.}}\right)$

2 hams, each 12½ lbs., at 9½d. per lb. $= \left(\frac{9\frac{1}{2}\text{d.} \times 12\frac{1}{2}\text{ lbs.} \times 2}{\text{1 lb.}}\right)$

15 st., at 5d. per lb. $= \left(\frac{\text{5d.} \times \text{15 st.}}{\text{1 lb.}}\right)$

16 oz., at £25 per cwt. $= \left(\frac{\pounds 25 \times \text{16 oz.}}{\text{1 cwt.}}\right)$

After pointing out that in the first quantity 1s. 4d. has to be multiplied by 26 lbs. to get the price in full, make a statement to show that the same result may be found by Simple Proportion, where 1 lb. will be the first term, 26 lbs. the second, and 1s. 4d. the third. Work out the latter, and gather from the computation that it is virtually the stereotyped arrangement after the item. 1s. 4d. is put first, and after it 26 lbs., with the sign of multiplication between them, while under the whole 1 lb. is placed as being the divisor. From this lay down a rule that *the price is multiplied by what precedes it, and the product divided by what follows it.* In the second item, 9½d. is multiplied by 12½ lbs., and the result doubled, and finally divided by 1 lb. In the third, 5d. is multiplied by 15 stones, which have to be turned into pounds, because the divisor is 1 lb. In the last, £25 is multiplied by 16 ounces, and 1 cwt., the divisor, is reduced to ounces before the quotient is found. This is a very convenient method of dealing with every bill. At the same time, the success of it entirely depends upon adherence to the following:—1. The full statements should appear in succession after or under the items, to enable you to see at a glance to what extent your instructions have been complied with, as well as to secure lucidity in working. 2. The money should be placed first, after it the quantity on its left, and under both the quantity on its right, which is invariably a divisor. 3. The multiplier and divisor must be reduced to the same name or kind of thing before multiplication or division is attempted. After all, although there is an air of artificiality about the process, it is virtually Simple Proportion made easy, because the stating is stereotyped. Money is the third term, the multiplier the second, and the divisor the first. It will not diminish the gusto with which the pupils enter into the calculations under this new aspect if you let them understand clearly that they are effecting each solution by Rule of Three.

Points to be noted.

Process is really Simple Proportion.

Accustom them from the very commencement to write in full the different parts of the bill, putting after each its amount as soon as the result has been obtained. The items of a good bill should increase in difficulty, possessing both variety of form and judicious complications, so as to give scope for the exercise of reasoning, and skill and accuracy in computation. Bills put on paper should invariably appear in full and correct form, and no trace of slovenliness or neglect should at any time be tolerated.

VULGAR FRACTIONS.

It is beyond question that some rudimentary knowledge of the fraction of a unit is very desirable at a much earlier stage than this. Questions occur in the preceding rules in which fractional parts have to be dealt with. Such problems have either to be avoided, or the nature of the fraction has to be explained at the time. Although the fraction is treated in a somewhat mechanical way, it is to a certain extent not in-

The Fraction explained.

First Method.

capable of being understood when the primary rules are under study. In dealing with fractions, the reasoning powers of the child are brought into great activity, and so you will have to proceed with necessary caution and deliberation. At first the nature of a fraction, as something less than unity, has to be explained. The task savours somewhat of an object-lesson. Arrange your class in front of the board, and let each child give the utmost attention. Having selected a round and sizeable apple, show it to the class, and ask how many apples you are holding. On getting the answer "one," write 1 on the board. 1 then stands for the whole apple. Now cut it into two equal parts. Lift one of them and show it to the class. Explain that as 1 stood for the whole apple it cannot stand for a portion of it. Some one will suggest that you are holding a half, because the whole apple was halved. Write 1 upon 2 on the board to represent in figures what you have in your hand. Now lift the other half. The pupils will tell you that it is a half, and hence its symbol will likewise be $\frac{1}{2}$. So $\frac{1}{2}$ is less than 1, and $\frac{1}{2}$ and $\frac{1}{2}$ make a whole, or 1. Just as two halfpence make 1 penny, two halves of anything make a whole. Cut one of the halves into two equal parts, then do the same with the other. Put the pieces together so as to represent a whole, or 1. Remove one piece and show it to the class. Some one will suggest that it is a quarter, or one of the four parts into which the whole apple has been divided. Another will possibly name $\frac{1}{4}$ as its symbol. Previous familiarity with the fractional parts of a penny will enable the pupils to do this. Show that $\frac{1}{4}$ and $\frac{1}{4}$ make $\frac{1}{2}$ of the whole apple, and that there are four fourths in the whole or 1 apple, just as there are 4 farthings in a penny. But what do $\frac{1}{2}$ and $\frac{1}{4}$ mean? Put all the pieces together again, and removing $\frac{1}{2}$ make it plain that the 2 part of the symbol indicates the number of parts into which the 1 or whole apple has been divided, while the 1 of it tells how many of the parts are taken or spoken about. In a similar way explain that the 4 of $\frac{1}{4}$ denotes that the whole is in 4 equal portions, and that the 1 refers to one of them. Again take away $\frac{1}{4}$, and ask what is left. Three-fourths will be at once suggested. Write $\frac{3}{4}$ on the board. Show the 3 portions left, that the class may be assured. On this prove that $\frac{2}{4}$ is really $\frac{1}{2}$. Show $\frac{1}{2}$ of the apple, then separate its two constituent parts, thus making it clear that $\frac{1}{2}$ and $\frac{2}{4}$ are really the same fractional part of the whole. The pupils have now got a visible grasp of the nature of a fraction. Impress what you have taught by *asking them to come forward individually and write the symbols of the parts you show them.* Put the parts together and show the whole apple. A scholar writes 1. Remove half of it. $\frac{1}{2}$ is written. Bid the pupil write what is left. Put them together again. Pick out a fourth. $\frac{1}{4}$ will be written. The remaining portion will be set down as $\frac{3}{4}$. Bid some one explain what $\frac{3}{4}$ means. So $\frac{1}{4}$ and $\frac{3}{4}$ added together make 1. $\frac{1}{2}$ and $\frac{1}{2}$ added together also make 1. Again replace the pieces. Exhibit 2 halves, and ask how they should be written. After explanation, put $\frac{2}{2}$ on the board as the proper symbol. But since $\frac{2}{2}$ is really the whole apple, $\frac{2}{2}$ is the same as 1. The pupils already know that the lower figure of a fraction is a divisor, and it will be easy to show that 2, the upper figure, divided by 2, the lower, gives 1 as a quotient. But $\frac{2}{4}$ is the same as $\frac{1}{2}$. In figures, how may this be brought about? Divide the 2 and the 4 of the fraction each by 2, and the result is $\frac{1}{2}$. Here dwell upon the fact that *if the upper and lower figures of a fraction be divided by the same number, the value of the fraction is not changed.* A striking proof of this is already familiar to them. Two farthings are the same as one halfpenny. Conversely it might be shown that *if the upper and lower figures be each multiplied by the same number, the value of the fraction is unchanged.* $\frac{1}{2}$ treated thus by 2 will give $\frac{2}{4}$, which is the symbol representing the same quantity. You might still further make the pupils acquainted with fractional parts by dividing each quarter into two equal parts, each of which will be $\frac{1}{8}$ of the whole apple, or of 1. Vary your teaching by asking them to write on slates the symbols for the parts you show as well as for the remainders. By this they will realize the difference between a unit, or whole, and a fraction of a whole, and will know intelligently what a fraction really is. Explain that "vulgar" just means "common," and hence such portions as you have been dealing with are spoken of as vulgar fractions. Further, let them know that numbers such as 1, 2, 3, 4, etc., are called "integers," or wholes, because they refer to whole objects or things.

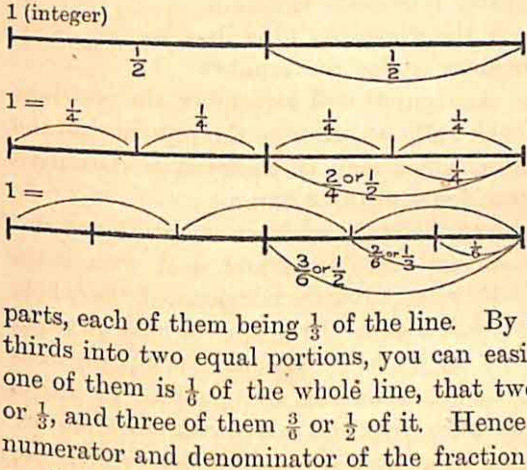
Numerator and Denominator Explained.

The terms *numerator* and *denominator*, which will have to be so often on the lips, should here be explained. Write $\frac{1}{2}$ on the board, and after 1 put "numerator," and after 2 "denominator." To a child these terms have an enigmatical sound. Be contented if he remembers them, and is impressed with the fact that the denominator represents the number of parts into which the whole has been divided, while the numerator states the number of these referred to. The pupils will remember the positions of the parts better if you call attention to the presence of the initial *d* in denominator, which may be accepted as indicative of the "down" or lower figure of the fraction.

$$\frac{1\ \text{Numerator.}}{2\ \text{Denominator.}}$$

Second Method.

To introduce scholars to the study of fractions, it is not uncommon to draw a line on the board and deal with it in sections, which are virtually fractions of the whole line accepted as a unit. Still it is beyond question that an object such as an apple or a small turnip of well-rounded proportions, that can be cut and handled in all its parts, is a much more attractive and convincing medium by which to convey an intelligent idea of what fractions really are, and of their relative values to each other, and to the unit in point of magnitude. You are hardly likely to produce the same results with the same despatch by means of a line instead of an actual object. Still, as the method is popular, it may not be amiss to indicate briefly the manner in which a knowledge of fractional parts may be conveyed through the channel of a linear demonstration. The instruments necessary for teaching are compasses, a ruler, and a pointed piece of chalk. Draw a bold, clear, horizontal line on the board. Ask how many lines you have made, and arrive at the fact that 1 represents the whole line. Then divide it exactly in the middle by a short vertical line. Each portion will be characterized as a half of the whole line. Write $\frac{1}{2}$, the symbol for one of them, under it, and conclude that $\frac{1}{2}$ added or joined to $\frac{1}{2}$ makes 1, or a whole. Again divide each of the halves into two equal parts, thus making the whole line appear in four equal sections, each of which is one-fourth part of the line. Next prove that $\frac{1}{4}$ is half of $\frac{1}{2}$, and that $\frac{2}{4}$ is the same as $\frac{1}{2}$. Here it will be easy to educe the fact that the denominator tells the number of parts into which the whole line has been divided, while the numerator indicates the number spoken of. Explain and impress these on the lines of the foregoing exposition. Reduce the fractional parts still further by dividing each of the quarters into two equal parts, each of which will represent $\frac{1}{8}$ of the whole line. Once more, the whole line might be divided into three equal parts, each of them being $\frac{1}{3}$ of the line. By dividing each of the thirds into two equal portions, you can easily demonstrate that one of them is $\frac{1}{6}$ of the whole line, that two of them will be $\frac{2}{6}$ or $\frac{1}{3}$, and three of them $\frac{3}{6}$ or $\frac{1}{2}$ of it. Hence conclude that if the numerator and denominator of the fraction be each multiplied or divided by the same number, its fractional value is not altered. The accompanying lines will show the arrangement presented on the blackboard when the lesson is finished. Drill the pupils as already directed in writing, naming, and explaining the parts to which you call attention. In this way get them thoroughly convinced that the idea implied in a fraction is a part of a whole, or 1, and that it is consequently less than it. Recall the fact that hitherto they have dealt mainly with whole numbers or integers, but that now the parts or fractions of a whole are to be specially considered. Thus by means of lines may the nature and values of fractions be expounded and



illustrated. By-and-by it will be useful to introduce by degrees the meaning of such terms as proper fraction, improper fraction, mixed numbers, etc. By some such method a broad solid foundation will be laid, to which an intelligent knowledge of fractional parts may be superadded. The name "vulgar fractions" should now no longer be an empty sound, nor should the rule begin to have anything of the maddening effect popularly ascribed to it.

The Greatest Common Measure.—The Greatest Common Measure has next to be taught. Write on the board, side by side, two such numbers as 16 and 84. Explain that a number which divides another evenly is called a measure of it, and get from the class that 2, 4, and 8 are of this order. They will also probably tell you that 2 or 4 will divide each of the two numbers and leave no remainder. On this let them understand clearly that a number which divides two or more numbers evenly is called a common measure of them. You will have little trouble in convincing them that there must be a *greatest* number which forms such a divisor. Then proceed to show how this greatest number—greatest divisor—*greatest common measure*, as it is called—is found. Bid them take slates and divide the greater of the two, 84, by 16, the less. When all have got 5 as the quotient and 4 over, tell them to put the last divisor, 16, after the remainder, 4, as a dividend, and divide 16 by 4. They will get 4 as quotient and no remainder. Tell them that when no remainder occurs, the last divisor is the greatest common measure. Repeat the work on the board as here shown, and to impress the fact that 4 is the measure required, refer to its being a divisor, which is wanted, and put the letters G.C.M. before 4. Now let the pupils work out a few similar exercises on slates, while you direct their efforts. The mode of finding the greatest common measure of three or more numbers may be explained in a word. Put three suitable numbers on the board, such as 12, 84, and 56. Set them to find the G.C.M. of the two smallest ones first. After dealing with 12 and 56, they will tell you that 4 is the

$$\begin{array}{r} 16)84(5 \\ \underline{80} \\ \text{G.C.M.} = 4)16(4 \\ \underline{16} \end{array}$$

measure required. Then bid them find the G.C.M. of 4 (the measure just discovered) and 84. The greatest common measure is 4; hence 4 is the G.C.M. of all three numbers. Now that they understand it, you may ask them to commit to memory a definition of the Greatest Common Measure.

The Least Common Multiple.—The Least Common Multiple of two or more numbers may next be explained. Put down the numbers 3, 18, and 45, and tell the pupils that when they found the greatest common measure it was a divisor that was required, but that here it is a dividend which can be divided evenly by each of the given numbers. Such a dividend is called a multiple. Write the word. After this proceed to illustrate the nature of a multiple. Multiply 45 by 18, and the product obtained by 3, thus getting 2430. Then divide 2430 by 3, 18, and 45 in succession, and explain that as it can be divided evenly by each of them, it is called a common multiple of them. But it may not be the smallest number that can be so divided. The smallest would be called the *least common multiple*. Now show how it is found. The subjoined arrangement shows the steps of the solution. Ask the pupils to name from observation any number that will divide 2 or more of these numbers evenly. Probably 3 will be suggested. Divide each of them separately by 3. The results are 1, 6, and 15. Again 3 will be found a convenient divisor. Explain that as 1 cannot be divided evenly by 3, it is simply repeated. The quotients beyond it are 2 and 5. Point out that no number greater than 1 will now divide them evenly. Put signs of multiplication between every two figures of the quotients and divisors, and multiply them together, thus getting 90 as the final product. This is the least common multiple. Divide 90 by each of the original numbers, 3, 18, and 45, to show that it is a multiple. Then put L.C.M. before it, and tell the class that these initials are written instead of the whole words. After recapitulating the computation, and working a few others on the board with the help of the pupils, give them a definition of the least common multiple, which you will finally

$$\begin{array}{r|l}
\text{M. } 3 & 3 - 18 - 45 \\ \cline{2-2}
\times & \\
3 & 1 - 6 - 15 \\ \cline{2-2}
\times & 1 \times 2 \times 5 \\
\end{array}$$

$$\text{L.C.M.} = 90$$

compare with the greatest common measure, so as to make the knowledge of the functions of both as clear and perfect as possible. The greatest common measure is the largest divisor, the least common multiple the smallest common dividend.

A Method of introducing Addition.

Addition of Vulgar Fractions.—The above essential preliminaries having been got over and thoroughly mastered, their practical application in the addition of vulgar fractions should be taught. Fractions may be added either vertically or horizontally. Unless the antecedent whole numbers be large, the latter arrangement will in all probability prove the handiest. As against the disadvantage of appearing an unnatural way of arranging the items, it has the advantage—and a very important one—of being the setting most likely to fit in with subsequent computations. A further though minor benefit is that it saves repetition of the denominator, once the rule is understood. It is also less bewildering than the vertical arrangement. The following solution may be selected as representing a tangible introduction to the rule. $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, and $\frac{2}{5}$ have to be added together, hence +, the sign of addition, is put between every two of them. You have now to work up to the addition formula, trusting to the intelligence of the pupils and previous instruction. Tell them that you are to suppose that each of these fractions is a part of an hour, although they may be parts of other things. Put "1 hour" above each of them, and pointing to the clock, remind the pupils that an hour is composed of 60 minutes. Get from them that the equivalent of one half-hour is 30 minutes, or 30 sixtieths of an hour. Under $\frac{1}{2}$ put $\frac{30}{60}$. Then refer again to the clock: $\frac{1}{3}$ of an hour will be readily recognized as 20 minutes, for 3 twenties make 60, so an equivalent for $\frac{1}{3}$ will be put below it in the shape of $\frac{20}{60}$. A fourth part, or quarter of an hour, will be suggested as 15 minutes; hence under $\frac{1}{4}$ will be put $\frac{15}{60}$, which is the same

$$\begin{array}{rcccccccc}
 & \text{1 hr.} & & \text{1 hr.} & & \text{1 hr.} & & \text{1 hr.} \\
\hline
 & \frac{1}{2} & + & \frac{1}{3} & + & \frac{1}{4} & + & \frac{2}{5} \\
 & 30 & + & 20 & + & 15 & + & 24 \\
\hline
\text{L.C.M.} & 60 & & 60 & & 60 & & 60 \\
\text{or} & 30 & + & 20 & + & 15 & + & 24 \\
\hline
 & \multicolumn{7}{c}{\text{Sixtieths (60)}}
\end{array}$$

$$= \tfrac{89}{60} \text{ or } 1\tfrac{29}{60}.$$

thing. Finally, the pupils will very probably conclude that the fifth part of an hour, or of 60 minutes, is 12 minutes. Here two-fifths are stated, so that 24 minutes will be recognized as equal to $\frac{2}{5}$ of an hour. Place $\frac{24}{60}$ under $\frac{2}{5}$, and between every two numerators put the sign of addition. Then pause, and call attention to the fact that each of the given fractions has been converted into a new phase, which is still of the same value as the original fraction. Go back on previous instruction and show that in dealing with $\frac{1}{2}$ both numerator and denominator have been, as it were, multiplied by 30 to produce $\frac{30}{60}$. Doing this, as is already known, does not alter the value of a fraction. The numerator and denominator of $\frac{1}{3}$, the pupils will tell you, have been multiplied by 20 to produce $\frac{20}{60}$; those of $\frac{1}{4}$ by 15 to produce $\frac{15}{60}$; and those of $\frac{2}{5}$ by 12 to get the resultant $\frac{24}{60}$. It will now be plain that all these sixtieths added together represent the total number of sixtieths in $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, and $\frac{2}{5}$. For lucidity, and to satisfy the class that it is the numerators only that have to be added, arrange them horizontally, and write the word "sixtieths" in the denominator's place. 30, 20, 15, and 24 added together amount to 89, so the answer is 89 sixtieths, or $\frac{89}{60}$. But 60 in such a position is a divisor of the numerator, so to get a more complete answer 89 will be divided by 60. The quotient is $1\frac{29}{60}$, which may be construed as 1 hour, and 29 sixtieths or minutes more than an hour. Thus far an intelligible demonstration of the addition of fractions will have been made by means of concrete items. The solution will now have to be analysed to arrive at a general formula which may be applied in the summation of abstract fractional parts. Impress, in the first place, that before fractions can be added they must be converted into equivalents, all having the same denominator. Point to 60, the common denominator in the above example, and after telling the class that 60 is really the least common multiple of 2, 3, 4, and 5, let them prove the statement on their slates. It is the least common multiple of all the numbers; hence it becomes a common denominator. Then to get $\frac{30}{60}$ instead of $\frac{1}{2}$, a suitable number to multiply the numerator and denominator of $\frac{1}{2}$ by is found by dividing 60 by the 2 of the fraction. The quotient is 30, which, used as a multiplier, gives $\frac{30}{60}$. Similarly 60 divided by the 3 of $\frac{1}{3}$ enables one to arrive at 20 as the required multiplier. 15 multiplies the 1 and 4 of $\frac{1}{4}$, making $\frac{15}{60}$. Lastly, 60 is divided by the 5 of $\frac{2}{5}$. The quotient is 12, and the 2 and 5 of $\frac{2}{5}$, multiplied by 12, result in $\frac{24}{60}$. Recapitulate the above exposition a few times, and **Points to be noted.** finally dwell on these points, which constitute the salient steps of the computation:—1. A common denominator is found, which is the least common multiple of the given denominators. 2. Divide the common denominator by each of the original denominators to obtain the necessary multiplier. 3. The sum of the numerators is the numerator of the common denominator. In your teaching urge emphatically that the rule depends for its accuracy upon the fact that if the numerator and denominator of a fraction be multiplied by the same number, the value of the fraction is not altered. Whenever the pupils possess an intelligent grasp of the Addition process, they may be set to apply the formula which both satisfies and facilitates the computation.

When $\frac{3}{5}$, $1\frac{1}{2}$, $\frac{6}{8}$, and 2 have to be summed, the data have to **Another form of Sum.** be recast before the rule is applied. In the preceding example you explained that $\frac{89}{60}$ was equivalent to $1\frac{29}{60}$. Treating $1\frac{1}{2}$ on the converse principle, you will easily satisfy the class that it may be represented as $\frac{3}{2}$. That $\frac{2}{1}$ is the same as 2 will also be obvious, because 1 takes the place of a divisor. Rearranged, the data now appear fractionally as $\frac{3}{5}$, $\frac{3}{2}$, $\frac{6}{8}$, and $\frac{2}{1}$. The affixing of 1 as a denominator of 2 adds lucidity to the operations. Apply the formula. The least common multiple of 5, 2, 8, and 1 is 40. Each fraction is now converted into fortieths, and these added amount to $\frac{194}{40}$, which may be further reduced to $4\frac{34}{40}$. On getting this you will show the pupils that by finding the greatest common measure of 34 and 40, and dividing each of them by it, $\frac{34}{40}$ can be reduced to another fraction equivalent in value but lower in terms. The utility of thus reducing a fraction will reveal itself more forcibly when large numerators and denominators are dealt with.

$$\frac{3}{5} + 1\frac{1}{2} + \frac{6}{8} + 2$$

$$\text{or } \frac{3}{5} + \frac{3}{2} + \frac{6}{8} + \frac{2}{1}$$

When the parts to be added appear mixed, insist upon it that they are arranged in fractional form before the summation is attempted. This rule requires much exposition and illustration on the board, as well as careful rehearsals and concurrent questioning of the class. As succeeding operations will largely depend upon this primary grounding for their success and accuracy, it is most essential that thoroughness should be kept steadily in view at every step.

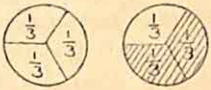
Subtraction of Vulgar Fractions.—Subtraction of Vulgar Fractions is easily mastered once Addition is known. Here also a horizontal arrangement is to be preferred to insure accuracy and clearness. Here up to a certain point the rule laid down for the adding of fractions is applicable. Tell the pupils that the working is precisely the same as in the case of Addition, but that instead of adding the equivalent numerators, the right hand one is subtracted from the remaining one. An example will illustrate the process and appearance of the steps. Here $\frac{1}{3}$ is to be taken from $\frac{3}{4}$. 12 is a common denominator, hence the equivalent for $\frac{3}{4}$ is $\frac{9}{12}$, while that for $\frac{1}{3}$ is $\frac{4}{12}$. So $\frac{4}{12}$ is to be taken from $\frac{9}{12}$. Put minus (−) —the sign of Subtraction—between 9 and 4. Subtract. The difference is $\frac{5}{12}$, which is thus the difference between $\frac{3}{4}$ and $\frac{1}{3}$. When $1\frac{2}{3}$ has to be taken from 5, insist upon the arrangement suggested in adding such parts being adhered to. $\frac{5}{3}$ will accordingly have to be taken from $\frac{5}{1}$, written in this form. At some future time it will be useful to indicate the points in which solutions arrived at horizontally coincide with those which have been effected vertically. Meantime it will be inexpedient to do so, because so long as the manipulations are characterized by simplicity and orderliness, and their sufficiency is established, there will be no need to deviate from a well-defined system, which conveys to the pupils a clear and intelligent notion of the rule. The same fulness of transformations and statements you exhibit on the board should be characteristic of the pupils' efforts on slates. Addition and Subtraction are so distinct from Multiplication and Division, that they should be thoroughly known before the latter are attempted.

$$\frac{3}{4} - \frac{1}{3}$$
$$= \frac{9-4}{12}$$
$$= \frac{5}{12}$$

Multiplication of Vulgar Fractions.—The purely mechanical manipulations are so extremely simple, that by the application of a brief rule Multiplication of Fractions may, for all practical purposes, be taught in a few minutes. But although absolute accuracy in results may be obtained without any intelligent comprehension of the effectual process, it is very desirable that an attempt should at least be made to indicate the scientific principles involved in the computation. Put on the board $\frac{4}{5}$ and $\frac{2}{3}$, with the sign of multiplication between them. Underneath draw two circles, each being divided into three equal parts by radii. Put $\frac{1}{3}$ in each space to show its value relatively to the whole area of the circle. Point out that the two circles represent two wholes, or, in figures, $\frac{2}{1}$. Multiply $\frac{4}{5}$ by 2, say 2 whole circles. The pupils' knowledge of the handling of $5\frac{1}{2}$ and $30\frac{1}{4}$ in Reduction problems will enable them to do this. $\frac{4}{5}$ is the same as no units and $\frac{4}{5}$ of unity, or $0\frac{4}{5}$, which multiplied by 2 on the lines already laid down, will result in $1\frac{3}{5}$ or $\frac{8}{5}$. Hence $1\frac{3}{5}$ would be the product of $\frac{4}{5}$ multiplied by 2 wholes, say 2 whole circles. But in the question $\frac{4}{5}$ has to be multiplied by $\frac{2}{3}$, not by 2. What is the difference between these multipliers? Look at the circles. Whiten two-thirds of one of them to emphasize the relation of $\frac{2}{3}$ of a circle to two whole circles in point of superficies. There are six thirds altogether, for $\frac{6}{3}$ is the same as 2. So $\frac{4}{5}$ has been multiplied by $\frac{6}{3}$ instead of $\frac{2}{3}$. The result is three times larger than it should be. It can be put right by dividing it by 3. The product was $1\frac{3}{5}$. Divide. According to previous explanations the divisor 3 and the dividend $1\frac{3}{5}$ will each have to be reduced to fifths. Finally, 8 will have to be divided by 15, the result being $0\frac{8}{15}$, or simply $\frac{8}{15}$. So $\frac{4}{5} \times \frac{2}{3}$ is $\frac{8}{15}$. Repeat these reasonings a few times, observing slowness

Scientifically explained.

$\frac{4}{5} \times \frac{2}{3}$



$\frac{4}{5} \times 2$

$= 0\frac{4}{5} \times 2$

$= \begin{array}{r} 0\frac{4}{5} \\ 2 \end{array}$

$5 \,\big|\, \underline{8}$

$1\frac{3}{5}$ or $\frac{8}{5}$

$$\begin{array}{r|l} 3 & 1\frac{3}{5} \\ 5 & 5 \\ \hline 15 & 8 \end{array}$$

$0\frac{8}{15}$. Answer.

and lucidity, which aid digestion. Thus by means of circles or lines it may be clearly proved that multiplying the given multiplicand by the numerator of the multiplier, gives a result greater than the required one by the number of times the denominator of the multiplier is contained in it. The foregoing analysis of the principles of the rule are mainly valuable as an intellectual discipline, and are perhaps wholly overlooked in actual practice.

The Multiplication Formula.

You may now indicate briefly the stereotyped lines upon which the Multiplication process is conducted. After explaining the fundamental principles, point out that $\frac{8}{15}$ is simply the result of *multiplying the two numerators and the two denominators together;* for 4 × 2 gives 8, and 5 × 3 gives 15. Tell the pupils that by applying this rule accurate products may always be obtained; but that while it appears simple in itself, it is nevertheless the embodiment of the scientific demonstration.

$$\frac{4}{5} \times \frac{2}{3}$$

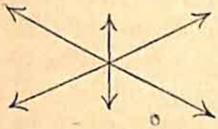
$$= \frac{8}{15} \text{ Ans.}$$

Cancelling.

About the formula itself there is decidedly a mechanical ring, especially when the principles of the rule are not expounded. It will not make it a whit more so to show how the manipulations may be simplified by a judicious use of contractions. Put on the board $\frac{5}{8} \times \frac{4}{20}$, getting $\frac{20}{160}$ after applying the ordinary rule. $\frac{20}{160}$ may be reduced to its equivalent $\frac{1}{8}$. Rewrite $\frac{5}{8} \times \frac{4}{20}$, and cancel 5 and 20, getting instead 1 and 4. Then reduce $\frac{4}{4}$ to its lowest terms $\frac{1}{1}$. Now multiply according to rule, and $\frac{1}{8}$ will be the product. After working out a few more examples, impress upon the class that contractions are invariably performed in two ways—namely, *up and down* or *crosswise.* Make arrow marks to form a key to the remembrance of these points. After repeatedly verifying the statement, write down the following rule to be committed to memory: "Only parts of different names in fractions may be cancelled."

$$^{1}\frac{5}{8} \times \frac{\cancel{4}}{20}\,\cancel{4}\,\frac{1}{1}$$

$$= \frac{1}{8} \times \frac{1}{1} = \frac{1}{8} \text{ Ans.}$$



A Rule.

Contracting need not be referred to till the primary rule for Multiplication has been established. Then the tedium of heavy operations may be relieved by explaining this supplementary phase of the solution. Backward pupils should seldom be permitted to cancel figures, but should be compelled to adhere to the plainest methods of working. It is preferable to have a correct result clearly though laboriously arrived at, than a wrong one effected through a few obscure, short, and intricate manipulations. The various symbols used in Multiplication should be illustrated. These are × . , and "of." As the examples increase in number they should grow in difficulty and magnitude. No matter how many fractional parts are to be multiplied together, the above formula is ever sufficient. The pupils may next proceed to Division of Fractions, a branch embodying several steps that are characteristic of Multiplication.

Division of Vulgar Fractions.—Without defining the time at which Division of Fractions may be explained to a child, Dr. Fitch in his "Lectures on Teaching," p. 332, says a very wise thing. Liberty is taken to quote his remarks: "What, for example, can be more unsatisfactory than the rule for Division of Fractions if blindly accepted and followed: 'Invert the divisor and treat it as a multiplier.' This seems more like conjuring with numbers than performing a rational process." This is a perfectly sound statement no doubt, and one based upon a laudable desire to foster the loftier phases of education. Still it must be allowed that a measure of credit is due to ability to perform work of any kind mechanically where little or no knowledge of the scientific substratum obtains. Hence in arithmetic the effort is certainly commendable which, by whatever method, results in an accurate solution. On the same analogy it is desirable and of value that one be able to treat a wound medicatively without his being in a position to explain the pathological and scientific principles involved in the process of healing. That a child should be able to give a rational explanation of the various steps of his solutions is undoubtedly evidence of a higher discipline and more fully developed intellect; but in its

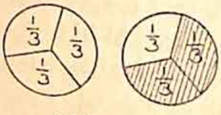
Statement regarding the Process.

first and last stages the question resolves itself into one of practical utility rather than of logical proficiency. Even were the pupil able to explain the rationale of his working, it is by no means likely that it will enter into the process, when he essays to effect a solution which in its simplicity and conventionality of manipulations flows so glibly from his pencil. He is satisfied when he can find correct quotients by any method. But an appeal to scientific principles will occasionally occur when a certain class of problems is dealt with. It is then that the function of the teacher and capacity of the scholar are put to the test. Still, even to young children the nature of a solution in Division of Fractions may be intelligibly explained before the process becomes wholly stereotyped and mechanical.

The scientific Explanation.

The fractions already used in the explanation of Multiplication will be serviceable in this instance. Here $\frac{4}{5}$ is to be divided by $\frac{2}{3}$. Draw two equal circles below the statement, and, as before, divide each of them into three parts of equal area. Then proceed. $\frac{4}{5}$ is the same as $0\frac{4}{5}$. Divide $0\frac{4}{5}$ by 2 (two whole circles). The presence of 0 before the fraction adds to the lucidity of the operation. Reduce both the divisor and dividend to fifths, thus getting 10 and 4. The quotient is $\frac{4}{10}$, or $0\frac{4}{10}$, which is the same thing. So $\frac{4}{5}$ has been divided by 2. Point to the circles, and continue. Two wholes have been divided into thirds, and there are six of them. But $\frac{6}{3}$ is the same as 2. So $\frac{4}{5}$ divided by $\frac{6}{3}$ would have given as a quotient $\frac{4}{10}$, the same as $\frac{4}{5}$ divided by 2. But the question gives $\frac{2}{3}$ as the divisor, not $\frac{6}{3}$. Look at the circles. Six thirds are three times the size of $\frac{2}{3}$. Therefore $\frac{4}{10}$ is three times less than it should be, just because the divisor 2, or $\frac{6}{3}$, is three times larger than it ought to be. To put matters right, $0\frac{4}{10}$ will have to be multiplied by 3. The result is $\frac{12}{10}$ or $1\frac{2}{10}$, which is thus the quotient required. Any child of average intellectual capacity will be able to follow the above reasoning, which, while illus-

$$\frac{4}{5} \div \frac{2}{3}$$



$$\begin{array}{r|l} 2 & 0\frac{4}{5} \\ 5 & 5 \\ \hline 10 & 4 \\ \hline & 0\frac{4}{10} \end{array}$$

$$\begin{array}{r|l} & 0\frac{4}{10} \\ & 3 \\ \hline 10 & 12 \\ \hline & 1\frac{2}{10} \text{ or } \frac{12}{10} \end{array}$$

trative of the general principles upon which the rule is based, is specially arranged and fitted for the grasp of a tender intellect. Having slowly rehearsed the explanations, from observation of the result proceed to construct a definite universal rule, which will guide the pupil in his solutions. Point out, as in the annexed example, that $\frac{4}{5}$ multiplied by $\frac{3}{2}$ (the divisor inverted) gives $\frac{12}{10}$, which has already been arrived at as the quotient of $\frac{4}{5} \div \frac{2}{3}$. The rule for Division then is:—*Invert the divisor and multiply.* Although the formula sounds mechanical, if carefully analysed it will be found to be based on the foregoing scientific principles. The explanation of the steps is virtually the proof of the accuracy of the computation. Division will now have asserted itself in the pupils' minds as practically Multiplication when the inversion of the divisor has taken place. After much practice in the rule, the more expert scholars may be allowed, as in Multiplication, to cancel terms; but you will have to impress upon them that this can only be done after the arrangement of the fractions for multiplication has been made. A horizontal line drawn between all the numerators and denominators is of service, as showing distinctly the nature of the figures to be multiplied together. A most important step is the detection of the divisors in the statement. Drill the class in detecting them in a variety of situations. A child that can do Multiplication well can hardly go astray in Division. The rule as mechanically applied resolves itself into three steps—(*a*) the detection of the divisor, (*b*) the inversion of it, and (*c*) the multiplication. Write in succession the words *divisor*, *invert*, and *multiply* on the board for the guidance of the pupils in the initial stages. To beginners the arrangement of the fractions is sometimes perplexing. Point out that $\frac{\frac{3}{4}}{\frac{5}{6}}$ is but $\frac{3}{4} \div \frac{5}{6}$; while $\frac{\frac{5}{6}}{3}$ is practically $\frac{5}{6} \div \frac{3}{1}$. No matter how mixed or abbreviated the fractional statement may

$$\frac{4}{5} \div \frac{2}{3} \text{ gives } \frac{12}{10}$$

$$\text{But } \frac{4}{5} \times \frac{3}{2}$$

$$\text{or } \frac{4 \times 2}{5 \times 3} \text{ gives } \frac{12}{10} \text{ or } 1\frac{2}{10}$$

The Rule for Division.

The three Steps of a Solution.

appear, insist upon it that its constituent fractions be arranged after a fixed, clear, and uniform plan before the solution is proceeded with.

The Simplification of Fractions.—Now that the four primary rules have been thoroughly mastered, it will be well to drill the pupils in working exercises involving two or more of them. The much-dreaded task which opens with the word "Simplify" can really be made simple and enjoyable, if treated methodically. The orderliness of the work and the neat arrangement of the steps can easily be tested by the degree of ease with which one can follow the progress of the solution by mere observation. The first series of exercises may not include more than two rules. The introduction of complications and all four rules should be gradual, and will entirely depend upon the progress and proficiency of the class. Annexed is a specimen of the method of simplification which will by-and-by obtain on the slates of well-taught pupils. As you give instruction in simplifying such an arrangement, lay great stress upon these points, upon which a deal of the accuracy of the work hinges:—(1) The brackets must be kept about all fractions till their contents are reduced to a single fraction; (2) fractions connected by "of," which signifies "multiply," must, *as a rule*, be multiplied together first, and the product treated

Simplify $\dfrac{(2\frac{3}{4} - \frac{1}{8} \text{ of } 1\frac{5}{6}) + 3(\frac{1}{3} \times \frac{12}{5})}{\frac{2}{3} \text{ of } \frac{3}{8} \div 6}$

$$\textit{1st Step.} = \dfrac{\left(\frac{11}{4} - \frac{1}{8} \times \frac{11}{6}\right) + \frac{3}{1} \times \left(\frac{1}{\underset{1}{\cancel{3}}} \times \frac{\overset{4}{\cancel{12}}}{5}\right)}{\frac{\overset{1}{\cancel{2}}}{\underset{1}{\cancel{3}}} \times \frac{\overset{1}{\cancel{3}}}{\underset{4}{\cancel{8}}} \div \frac{6}{1}}$$

$$\textit{2nd} = \dfrac{\left(\frac{11}{4} - \frac{11}{48}\right) + \left(\frac{3}{1} \times \frac{4}{5}\right)}{\frac{1}{4} \div \frac{6}{1}}$$

$$\textit{3rd} = \dfrac{\left(\frac{132 - 11}{48}\right) + \frac{12}{5}}{\frac{1}{4} \times \frac{1}{6}}$$

$$\textit{4th} = \dfrac{\frac{121}{48} + \frac{12}{5}}{\frac{1}{24}}$$

$$\textit{5th} = \dfrac{\frac{605 + 576}{240}}{\frac{1}{24}}$$

$$\textit{6th} = \dfrac{\frac{1181}{240}}{\frac{1}{24}}$$

$$\textit{7th} = \frac{1181}{\underset{10}{\cancel{240}}} \times \frac{\overset{1}{\cancel{24}}}{1}$$

$$= \frac{1181}{10} \text{ or } 118\tfrac{1}{10}. \text{ Ans.}$$

as a single fraction. The first step is manifestly the statement merely written plainer, and with ordinary signs fully inserted. This ought invariably to be done in the case of all solutions. Each step is preceded by =, meaning "equal to," which shows that the present finding is but a simplification of the preceding one. The minor and subsidiary operations should be performed apart from the steps themselves, and ought to be obliterated as soon as the results have been obtained and located. Thus by slowly performing the simplifications, and arranging the transformations systematically, you will be enabled to exhibit a series of gradually diminishing complexities, culminating in a single fraction. The air of completeness and lucidity will be satisfactory to the pupils. This mode of working has the further advantage—a most essential one—of diminishing the risk of errors, which are so apt to occur when the figures of the simplification appear heaped in confused and forbidding masses all over the slate, a fragmentary solution being attempted here, a tentative one there, and no definite point showing itself at which the thread of the calculation may be laid hold of and followed. The above arrangement makes it possible for the pupil to cease working at any moment with impunity. He can safely resume the operation at the very point where he left off. This form of question is a capital test of ability to perform the four elementary rules in Fractions. It is in reality *multum in parvo.* Practice and abundant exemplifications will breed familiarity with it. The same methodical treatment should be observed when the work is done on paper. A large card, exhibiting such an exercise in full detail, might profitably be suspended in front of the class for reference at any moment, and for the purpose of guiding and encouraging those struggling with similar simplifications.

Fractional Parts of Money, etc.—Up to this point fractions in the abstract have been under consideration. It will in the next place be desirable to deal with them in their concrete aspect, in so far as they are associated with money, and weights and measures. Put on the board "$\frac{1}{2}$ of 10s.," and substituting for "of" the ordinary symbol of multiplication, show that the task really resolves itself into the finding of the product of $\frac{1}{2}\times\frac{10}{1}$s., which, of course, is 5s. But a system has to be adhered to when the problem is to find the value of $\frac{3}{4}+\frac{1}{2}$ of £2, 10s. While you may point out that $\frac{3}{4}$ of £2, 10s. added to $\frac{1}{2}$ of £2, 10s. gives a sum which is the correct amount, you must advocate a more systematic mode of solution.

First Example.

$$\frac{3}{4}+\frac{1}{2}\text{ of £2, 10s.}$$
$$=\left(\frac{3}{4}+\frac{1}{2}\right)\times\text{£2, 10s.}$$
$$=\left(\frac{3+2}{4}\right)\times\frac{\text{£2, 10s.}}{1}$$
$$=\frac{5}{4}\times\frac{\text{£2, 10s.}}{1}$$
$$=\frac{\text{£12, 10s.}}{4}$$
$$=\text{£3, 2s. 6d. Ans.}$$

Tell the pupils that $\frac{3}{4}$ and $\frac{1}{2}$ have to be added together, so as to find a single part, which will then be the required fraction of £2, 10s. It will thus be found, as shown in the accompanying solution, that £2, 10s. has to be multiplied by $\frac{5}{4}$, thus producing £3, 2s. 6d. as the required amount. The chief point to dwell upon is that the fractions have to be simplified first, after which the money may be multiplied by the resultant fraction. Such an exercise as "*Find the value of* $\dfrac{\frac{1}{3}\left(2\frac{1}{2}\text{ of }\frac{5}{6}\right)}{\frac{15}{3}}$ of $2\frac{1}{2}$ acres" will illustrate this more fully. The solution is here given.

Second Example.

$$\frac{\frac{1}{3}\left(2\frac{1}{2}\text{ of }\frac{5}{6}\right)}{\frac{15}{3}}\text{ of }2\tfrac{1}{2}\text{ acres.}$$
$$\frac{\frac{1}{3}\times\left(\frac{5}{2}\times\frac{5}{6}\right)}{\frac{15}{3}}\times 2\tfrac{1}{2}\text{ ac.}$$
$$=\frac{\frac{1}{3}\times\frac{25}{12}}{\frac{15}{3}}\times 2\tfrac{1}{2}\text{ ac.}$$
$$=\frac{\frac{25}{36}}{\frac{15}{3}}\times 2\tfrac{1}{2}\text{ ac.}$$
$$=\frac{\overset{5}{\cancel{25}}}{\underset{12}{\cancel{36}}}\times\frac{\overset{1}{\cancel{3}}}{\underset{3}{\cancel{15}}}\times 2\tfrac{1}{2}\text{ ac.}$$
$$=\frac{5}{12}\times\frac{1}{3}\times 2\tfrac{1}{2}\text{ ac.}=\frac{5}{36}\text{ of 2 ac. 2ro.}$$
$$=1\text{ ro. }15\,\frac{20}{36}\Big|\frac{5}{9}\text{ po. Ans.}$$

Observe that the simplification of the fractional part is carried out precisely on the lines already advocated. The relation of the fraction to $2\frac{1}{2}$ acres is sustained till the climax, where there is exhibited the multiplication of the given acres by the resultant fraction. The substitution of $\frac{5}{2}$ acres for $2\frac{1}{2}$ acres at an earlier stage might give a neater form of solution, but for clearness there is no reason why $2\frac{1}{2}$ acres should not finally be converted into 2 acres 2 roods, which can be multiplied in the ordinary way by $\frac{5}{36}$. The pupils should experience no difficulty in following the successive steps, and in working out similar problems for themselves. **Third Example.** A still more complicated form of exercise may be illustrated.

$$
\begin{array}{rcccc}
 & \left(\frac{3}{4}+\frac{1}{6}\text{ of £1, 10s.}\right) & + & \left(\frac{1}{3}\div\frac{1}{6}\text{ of 5s. 6d.}\right) & - \left(\frac{\frac{4}{7}}{\frac{3}{8}}\text{ of 5 of 2s. 6d.}\right)\\
= & \left(\frac{9+2}{12}\times\frac{30\text{s.}}{1}\right) & + & \left(\frac{1}{3}\times\frac{6}{1}\times\frac{11\text{s.}}{2}\right) & - \left(\frac{4}{7}\times\frac{8}{3}\times\frac{5}{1}\times\frac{5\text{s.}}{2}\right)\\
= & \left(\frac{11}{2\,\cancel{12}}\times\frac{\cancel{30}\text{s. }5}{1}\right) & + & \left(\frac{1\cancel{3}\,\cancel{6}}{1\,\cancel{3}}\times\frac{11\text{s.}}{\cancel{2}1}\right) & - \left(\frac{80\,\cancel{160}}{21}\times\frac{5\text{s.}}{\cancel{2}1}\right)\\
= & \left(\frac{11}{2}\times\frac{5\text{s.}}{1}\right) & + & \left(\frac{1}{1}\times\frac{11\text{s.}}{1}\right) & - \left(\frac{80}{21}\times\frac{5\text{s.}}{1}\right)\\
= & \frac{55\text{s.}}{2} & + & \frac{11\text{s.}}{1} & - \frac{400\text{s.}}{21}\\
= & \text{27s. 6d.} & + & \text{11s.} & - \text{19s. }0\tfrac{1}{2}\text{d. }\tfrac{2}{7}.
\end{array}
$$

$$
\begin{array}{rrrl}
 & & \text{s.} & \text{d.}\\
= & & 27 & 6\\
 & \text{Add} & 11 & 0\\
\hline
 & & 38 & 6\\
 & \text{Subtract} & 19 & 0\tfrac{1}{2}\,\tfrac{2}{7}\\
\hline
 & & 19 & 5\tfrac{1}{4}\,\tfrac{5}{7}\quad\text{Answer.}\\
\hline
\end{array}
$$

Here the work resolves itself into three main branches, which may be carried forward *pari passu*, or if it be preferred, as three separate simplifications resulting in 27s. 6d., 11s., and 19s. 0½d. $\frac{2}{7}$, obtained in succession. But on the whole, the solution will be more stimulating and satisfactory if you project the three parts harmoniously and symmetrically together. In the final subtraction, be careful to explain that $\frac{2}{7}$ of a farthing has to be subtracted from a borrowed farthing, which is equivalent to $\frac{7}{7}$; and $\frac{2}{7}$ taken from $\frac{7}{7}$ leaves $\frac{5}{7}$ of a farthing. The difference may be obtained either horizontally or vertically, as previous instruction and convenience dictate. These small points should be detected and explained as they occur, else they will be apt to trip up the pupils in solutions where all is seemingly plain sailing.

Reduction of Vulgar Fractions.—Reduction of Vulgar Fractions is comparatively easy after a little explanation. Write such a question as this in two forms, namely, "What fraction of 2 acres 2 roods is 15 poles?" and, "Reduce 15 poles to the fraction of 2 acres 2 roods." Then underline "of" in each of them. Explain that the two quantities specified have to be arranged fractionally as numerator and denominator, as the question suggests. Point out that 2 acres 2 roods are greater than 15 poles, hence 15 poles will be a small fraction of 2 acres 2 roods. 15 poles will have to be put in the numerator's place, because the number here located must be less than that in the denominator's place. The fractional arrangement will thus be 15 poles divided by 2 acres 2 roods. Before the final fraction can be obtained, both numerator and denominator have to be reduced to the same thing—generally that which is lowest in the statement. Here poles occur; so both parts are reduced to poles, and after a reduction process the resultant fraction $\frac{3}{80}$ is obtained. The accuracy of the solution may be proved by performing a converse operation, which will give 15 poles as the value of $\frac{3}{80}$ of 2 acres 2 roods. After the pupils have grasped the reasoning and steps of the computation, call pointed attention to the presence of "of" before 2 acres 2 roods in both forms of the question. Tell them that in reducing such questions the part having "of" before it is *invariably* put in the denominator's place. By this hint the difficulty of fixing the preliminary setting will be permanently overcome, and children of very mediocre parts will perform the solutions with the utmost accuracy.

$$\begin{aligned}(\text{of})\ &\frac{15\text{ po.}}{2\text{ ac. }2\text{ ro.}}\\ =\ &\frac{15\text{ po.}}{400\text{ po.}}\\ =\ &\frac{3}{80}\end{aligned}$$

Hence 15 po. $= \frac{3}{80}$ of 2 ac. 2 ro.

The Method explained.

The Key to the Arrangement.

When the question assumes the form of, "What fraction of $\frac{4}{5}$ of 5 acres is $\frac{1}{2}$ of 12 poles?" no hesitancy should be manifested if you point out that the value of "$\frac{4}{5}$ of 5 acres" and "$\frac{1}{2}$ of 12 poles" must first be found. Then the "of" before the former of the two will assert itself, and thus lead up to the correct setting of the items. The points to put special stress upon are—(1) the detection and placing of the "of" part in the denominator's place; (2) the reduction of both

Points to be observed.

numerator and denominator to the same denomination; and (3) the reduction of the final fraction to its lowest terms. The essential operations involved in Vulgar Fractions have now been overtaken; and if they are thoroughly comprehended, little difficulty will be experienced in dealing with subsequent supplementary exercises of a more problematical character.

Proportion with Fractional Parts.—As Proportion involving fractional parts is of frequent occurrence and of considerable importance, it will be necessary to refer to it at this point. Those who can work Simple Proportion will have little difficulty when fractions have to be stated. The chief thing to insist upon is that the value of each fractional portion be first calculated and then substituted in the problem.

But pupils of some ability should be taught to arrange fractionally such a statement as this in a clear and methodical manner without first finding equivalents for the items:—"If $\frac{3}{4}$ of $\frac{1}{2}$ of a yard cost £$\frac{5}{8}$, what will $\frac{5}{8}$ of a yard cost?" When stated in fractional form, it appears that £$\frac{5}{8}$ is to be multiplied by $\frac{5}{8}$ yd., and as $\frac{3}{8}$ yd. is the divisor it is inverted in compliance with the rule. The work is now reduced to plain Multiplication of Fractions. After cancelling £$\frac{25}{24}$ is got, which is equivalent to £1, 0s. 10d. Here the process while intelligible is less tedious and clumsy than that which effects a solution by ordinary Simple Proportion. The fractional method guarantees despatch, the other is associated with a greater assurance of accuracy at the expense of a greater expenditure of time.

$$\tfrac{3}{8}\text{ yd.} : \tfrac{5}{8}\text{ yd.} :: £\tfrac{5}{8} : \times$$

$$= \frac{1\,\cancel{8} \times 5 \times £5.}{3 \times \cancel{8}\,1 \times 8}$$

$$= \frac{£25}{24} = £1,\ 0\text{s. } 10\text{d. Ans.}$$

Problems involving a variety of rules should at first be of an easy type. The increase in difficulty should be gradual, and ought to correspond with the pupils' intellectual capacity and reasoning power. While the selection of problems is judicious, careful supervision of the pupils' individual and independent efforts is necessary. Most problems have "catches" in them which it is your province to explain, after the pupil's strenuous effort to overcome them has ended in failure. Examples of these include the clock, whose hands suggest ticklish problems; the cistern that leaks and fills at the same time; the ship which comes to the hammer; and the determination of the wages of A, B, and C, who work intermittently yet amicably together. It will add to the progress, lucidity, and correctness of the computation if you insist upon it that each step is fully stated. To be of value the problem demands observation, reason, judgment, and method, as paramount to the more subsidiary and secondary task of figuring. A problem means intellectual effort, of which the consecutive operations are the auxiliary, practical representation leading up to a specific result.

The Nature of common Problems.

DECIMAL FRACTIONS.

It is natural that the study of Decimals should follow the handling of Vulgar Fractions. An encouraging introduction to the rule will deal with the precise nature and peculiarities of decimal fractions. Put a few vulgar fractions on the top of the board, such as $\frac{1}{2}$, $\frac{3}{5}$, $\frac{12}{56}$, etc., and repeat that these represent fractional parts of unity. Immediately below them write 1000. Below 1000 put 100, and point out that it is $\frac{1}{10}$ of 1000. Under 100 put 10, and show that it is $\frac{1}{10}$ of 100. Lastly, place 1 notationally below 10, and it will be easily seen that it is $\frac{1}{10}$ of 10. Add the statement, getting 1111 as the sum. This is a whole number, and you have shown the relative values of the successive items. Draw a vertical line, and to the right of it exhibit the fractional parts of unity. The first 1 to the right represents $\frac{1}{10}$ of 1. 1 two places to the right will be $\frac{1}{10}$ of the last 1, and therefore $\frac{1}{10}$ of $\frac{1}{10}$ of unity, or $\frac{1}{100}$ of 1. A unit still further to the right will be $\frac{1}{10}$ of $\frac{1}{100}$ of unity or $\frac{1}{1000}$ of 1; and again, a unit four places to the right will be $\frac{1}{10}$ of $\frac{1}{1000}$ of unity or $\frac{1}{10000}$ of 1. Then explain that

Their Nature explained.

$$\begin{array}{rr|lcr}
 & 1000 & & & \\
\frac{1}{10} = & 100 & & & \\
\frac{1}{10} = & 10 & & & \\
\frac{1}{10} = & 1 & & & \\
\cline{1-2}
 & 1111 & 1 & = & \frac{1}{10} \text{ of } 1. \\
 & & 01 & = & \frac{1}{100} \text{ of } 1. \\
 & & 001 & = & \frac{1}{1000} \text{ of } 1. \\
 & & 0001 & = & \frac{1}{10000} \text{ of } 1. \\
\cline{3-3}
 & & 1111 & &
\end{array}$$

figures to the right of the line represent fractional parts of 1, and that instead of using lines, dots, or as they are sometimes called "points," are placed before the fraction. Substitute points for the line to impress their function and significance. Now revise the above illustration, and dwell upon the fact that 1111 is the whole number, while ·1111 is a fraction of unity, and is capable of being represented as ·1 + ·01 + ·001 + ·0001. The equivalents of these constituent parts should also be written in ordinary fractional form thus :—·1 = $\frac{1}{10}$, ·01 = $\frac{1}{100}$, etc. From this preliminary exposition certain important facts can be deduced :—1. When the number has a point before it, it is the numerator of a decimal fraction. 2. The denominator is always either 10 or some power of 10 ; hence the designation "decimal"—*decem* means "ten." 3. The number to the left of the point is the whole number, that to the right of it is a fraction of unity, whose numerator is stated, while the denominator is some unspecified power of 10.

Exercises on Decimals.

In order to familiarize the pupils with decimals, write a number of lines on the board, and exercise them in interpreting and analysing their constituent parts. For example, in speaking of 24·3 you should get from them that 24 is the whole part, and ·3 the fractional, being equivalent to $\frac{3}{10}$ of 1 ; so that the expression might be written as $24\frac{3}{10}$. Again 8·046 will appear as $8 + \frac{0}{10} + \frac{4}{100}\left(\frac{\cdot 04}{10\times 10}\right) + \frac{6}{1000}\left(\frac{\cdot 006}{10\times 10\times 10}\right)$. Write this in full as soon as the pupil suggests the items. By such a discipline it will readily be understood that 1 placed before as many ciphers as there are figures in the numerator in its decimal form will be the detailed denominator of the fraction. This results from the fact that the denominator of a number two places to the right of the point is represented by 10 raised to the second power, and that of a figure three places to the right by 10 raised to the third power, and so on, the power being the same as the number of places that the figure appears to the right of the decimal point.

Addition of Decimal Fractions.—It is characteristic of decimal fractions that they facilitate in an especial degree exercises in Addition, Subtraction, Multiplication, and Division in which fractional parts occur. While the computations can be effected mechanically yet accurately, and in ordinary practice are invariably done, by rule of thumb, it will be extremely desirable to give the pupils an intelligent grasp of the actual principles involved in the solutions. In dealing with Addition you will do well to append to the mechanical computation the exercise wrought out, it may be laboriously, on the lines of Vulgar Fractions. By this time the pupils are aware that 12·015 is virtually 12—a whole number—and $\frac{15}{1000}$, which results from its being $\frac{0}{10} + \frac{1}{100} + \frac{5}{1000}$. The different parts of an Addition exercise should be written first decimally, and immediately after in the form of Vulgar Fractions. Then the summation should be made in both cases with the same result, thus establishing the soundness of the computation, which decimally appears to be so mechanical. The accompanying sum might be accepted as a first specimen, not too difficult to handle in both forms, yet sufficiently comprehensive to illustrate the rationale of the rule. After writing the parts in decimal form, and explaining that all points must be exactly below each other, because in the whole numbers every first figure to the left of them is in the units' place, get the pupils to suggest the proper denominators before you write them. Follow this up by making them copy the vulgar fraction portion of the exercise on slates. They will also add the items, which amount to $2200\frac{4476}{10000}$. Repeat the work on the board to bring the two modes into close contact, and emphasize the precise rationale of the solution. Then explain that decimally the numbers and their fractional parts are added exactly as in Simple Addition, the latter being dealt with first, and the summation proceeding from the first column of figures. When the first line after the decimal point is added it will be found to amount to 14. Point out that

The Rule explained.

12·015	=	$12\frac{15}{1000}$	$\frac{150}{10000}$
4·8	=	$4\frac{8}{10}$	$\frac{8000}{10000}$
·63	=	$\frac{63}{100}$	$\frac{6300}{10000}$
183·	=	183	
2000·0026	=	$2000\frac{26}{10000}$	$\frac{26}{10000}$
2200·4476	=	$2200\frac{4476}{10000}$	$\frac{14476}{10000} = 1\frac{4476}{10000}$

as this is really $\frac{14}{10}$, it is $1\frac{4}{10}$, so that 1, the whole number, will have to be added to the units' column, while before 4 in the answer the decimal point will have to be placed. A glance will show that the decimal point in the answer is precisely below the points occurring in the data. Be careful to explain that the whole numbers of the items must be written notationally. The answer is 2200·4476. Bid the pupils convert this into the fuller fractional form. After what they know of decimals, they will have little difficulty in representing it as $2200\frac{4476}{10000}$, which is precisely what was obtained through the medium of the more detailed and intelligible computation. Work out a few more examples, repeating the process *in extenso*, as in Vulgar Fractions, till the pupils are able to make summations for themselves, and have gathered from the double exposition that the one—the abbreviated decimal solution—is after all but a simplification and curtailment of the other.

The Rule explained.

Subtraction of Decimal Fractions.—Subtraction of decimals is even simpler than Addition. The following might be set down as a good example from which to illustrate the rule—"3·8735 is to be taken from 36·15." To make the reasoning clear, first find the difference by Vulgar Fractions, which will explain the more mechanical decimal manipulation. By-and-by you will be brought up at the point where $\frac{8735}{10000}$ has to be taken from the smaller fraction $\frac{1500}{10000}$. Here explain that the subtraction process cannot proceed till 1 or $\frac{10000}{10000}$ is borrowed from 36 and added to $\frac{1500}{10000}$, thus making $\frac{11500}{10000}$, and leaving 35 as the whole number. The subsequent steps are easy, and the difference will be found to be $32\frac{2765}{10000}$. It will, in the next place, be necessary to prove that the addition of ciphers to the right of the fractional part does not alter the value of the fraction. This being settled, tell the pupils that over 3 and 5 ciphers are placed, not because they are essential, but for the sake of lucidity in subtracting, and that the difference is found by proceeding according to Simple Subtraction. When 8 has to be taken from

$$\begin{array}{rcr|c}
36\cdot1500 & = & 36\frac{15}{100} & \frac{1500}{10000} \\
3\cdot8735 & = & 3\frac{8735}{10000} & \frac{8735}{10000} \\
\hline
32\cdot2765 & = & 32\frac{2765}{10000} & \\
\hline
\end{array}$$

Points to be noted.

0, or more correctly speaking $\frac{8}{10}$ from $\frac{0}{10}$, point out that 1 or $\frac{10}{10}$ has to be taken from 36, leaving in its place 35. The difference is thus $\frac{2}{10}$, or decimally ·2. Hence the decimal point, as in Addition, occurs exactly under the points in the parts of the question. Finally, let the class prove that 32·2765 is the same as $32\frac{2765}{10000}$, which was obtained by the previous computation. The points to lay special stress upon are these—(1) keep the points under each other in setting the exercise; (2) insert ciphers where figures are wanting in the fractional part of the upper line; (3) proceed as in Simple Subtraction, placing the point under the points in the data. Observing these rules, the pupils can hardly go astray when subtracting.

The Reasoning.

Multiplication of Decimal Fractions.—Multiplication is just as easily taught as either of the foregoing rules. The dual form of calculation is still to be adhered to in expounding the rationale of the process. Put 12·205 × 3·06 on the board, and find the product as in Vulgar Fractions first. The two items to be multiplied together are $12\frac{205}{1000}$ and $3\frac{6}{100}$. The product is $\frac{3734730}{100000}$, which simplified becomes $37\frac{34730}{100000}$. When this has been found (the pupils should have done the work on slates), call attention to the placing of 3·06, the point of the multiplier being under that of the multiplicand. This in itself is immaterial, but it tends to secure greater accuracy in determining the position of the point in the result. Tell the pupils to multiply as in Simple Multiplication. At first the points might be removed to show that this step is not encumbered by any consideration of them. After the answer has been obtained, ask some one in the class to count the number of decimal places in the multiplier and multiplicand. In the former there are two and in the latter three, or five in all. Beginning at the right-hand side of the answer, count off five figures, and put the point between 3 and 7. Point out that 3734730 is virtually divided

$$\begin{array}{r}
12{\cdot}205 \\
3{\cdot}06 \\
\hline
73230 \\
366150 \\
\hline
37{\cdot}34730 \\
\hline
\end{array}
\qquad
\begin{array}{l}
12\frac{205}{1000} \times 3\frac{6}{100} \\
\\
= \frac{12205}{1000} \times \frac{306}{100} \\
\\
= \frac{3734730}{100000} = 37\frac{34730}{100000}
\end{array}$$

by 100000. The product is therefore 37·34730; but as the last 0 does not alter the value of the fraction, it is customary to drop it. Call attention to the fact that this decimal result is exactly the same as that obtained by the other and more elaborate solution. Then lay down the rule:—*Multiply as in Simple Multiplication, taking no notice of the points; then make the number of decimal places in the answer correspond with the total number in the multiplier and multiplicand.*

The Rule for Multiplication.

Another Form of Exercise.

After a little an exercise such as this should get some practice—"Multiply ·0315 by ·002." Ability to comprehend the reasoning involved in such a solution largely depends upon one's knowledge of Division and the conversion of vulgar fractions into decimal ones. The mechanical steps, however, are very easily performed. After multiplying in the ordinary way, the scholars will get as product 630. Here the presence of the difficulty of determining the point will impress the remedy. Bid them count the decimal places as heretofore. Seven are found. Now show that four ciphers must be projected to the left of 6, and the point put before the fourth. The answer will accordingly be ·000063$\cancel{0}$. It will be found very profitable to ask the pupils to give their answers in this and other rules in both decimal and vulgar fraction form, when such a thing is possible and convenient.

$$\begin{array}{r} \cdot 0\;3\;1\;5 \\ \cdot 0\;0\;2 \\ \hline \cdot 0\;0\;0\;0\;6\;3\;\cancel{0} \end{array}$$

Division of Decimal Fractions.—To the young arithmetician Division presents more difficulties and pitfalls than any of the preceding rules. The exercise of a little care and ingenuity will remove barriers which at first are apt to appear insurmountable.

The Process illustrated.

As a first example put on the board 3·216 to be divided by 1·5. To prove conclusively that the mechanical process of dividing decimally is correct and sufficient, find a quotient in the first place by Vulgar Fractions. The working which the pupils may be asked to do on slates, afterwards to be repeated on the board, might appear as here detailed. 3·216 is the same as $3\frac{216}{1000}$, which has to be divided by 1·5 or

$$\frac{3{\cdot}216}{1{\cdot}5} = \frac{3\frac{216}{1000}}{1\frac{5}{10}}$$

$$= \frac{\frac{3216}{1000}}{\frac{15}{10}} = \frac{3216}{1000} \quad \times \frac{10}{15}$$

$$= \frac{32160}{15000} = 2\frac{2160}{15000} = 2\frac{144}{1000}$$

$$= 2{\cdot}144$$

```
 1·500)3·216(

 1500|3216|2·144
     |3000
      ----
       2160
       1500
       ----
        6600
        6000
        ----
         6000
         6000
         ----
```

$1\frac{5}{10}$. This gives $\frac{32160}{15000}$, which is ultimately rendered as $2\frac{144}{1000}$, both numerator and denominator of the previous arrangement having been divided by 15. The class will readily recognize that $2\frac{144}{1000}$ is decimally 2·144. Let this stand by itself. Now arrange 1·5 and 3·216 for division. In the first place, call attention to the preponderance of decimal places in the dividend. There are three in it, and only one in the divisor. Explain that ciphers have to be affixed till the two possess the same number of decimal places. In this case two ciphers are added to 5 to make three, as in the dividend. In the next place, rewrite the two items, *omitting the decimal points altogether.* Then ask the pupils to divide 3216 by 1500 on slates as in Simple Division. They will get 2 and 216 over. Bid them append a cipher to this remainder, making 2160. Place a decimal point in the quotient as a step concomitant with the adding of the cipher, and divide again; 1 is the quotient, and 660 remains. Again add a cipher, and divide. 4 is the quotient, and 600 is over. Add yet another cipher, and divide. 4 is the quotient, and nothing remains; so 2·144 is the answer—the same as that obtained through the detailed exemplification which appears above. What you have now to impress is the steps which produced this result. These you will write clearly on the top of the board in an abbreviated form, that the pupils, while working independently, may refer to them at any time, till practice begets familiarity with them. They are as follows—(1) make both divisor and dividend have the same number of decimal places; (2) rewrite the question, *omitting points;* (3) divide as in Simple Division; (4) when a cipher has to be added, place a point in the quotient and continue the addition of ciphers till the end. Upon the

The Steps to be noted.

The Rationale of the Rule.

observance of these successive steps the accuracy of the mechanical solution will depend; hence they must be strictly complied with, not because they form the only mode, but because they have proved to be an easy and successful method of finding the quotient. The necessity of adhering to the rules will be very apparent when such a sum as this has to be dealt with—"Divide 65 by ·0001." Here four ciphers have to be affixed to 65 to balance the four decimal places of the divisor. Reset, the sum will appear as 650000 divided by 0001. The pupils will be forced to accept 1 as really the divisor in this case, the three antecedent ciphers proving of no value or use whatever in this situation. The quotient will accordingly be 650000, which according to Vulgar Fractions is got from $(\frac{65}{1} \div \frac{1}{10000})$—that is, $(\frac{65}{1} \times \frac{10000}{1})$, or $\frac{650000}{1}$. Thus far you have been impressing the mechanical method of solution, by noting the operations leading up to a quotient already intelligently obtained through the channel of a cognate rule. This will meantime be sufficient for all practical purposes. But you must be at pains to explain the principles underlying the solution, which the calculation by Vulgar Fractions will help the pupils to understand. In the opening exemplification the product $\frac{32160}{15000}$ is the same as $\frac{3216}{1500}$. In the decimal solution the divisor and dividend are the denominator and numerator of this vulgar fraction, and are obtained by equalizing the number of decimal places and removing the point. The dividing results in the integer 2 and $\frac{216}{1500}$ over. This fraction reduced to decimal form by the adding of successive ciphers gives ·144. This mode of solution aims at introducing nothing particularly novel, and tends to create as little confusion as possible in the child's mind. Other methods of dividing can hardly be explained alongside of this one with impunity.

A repeating Decimal in the Quotient.

This is a very opportune point at which to introduce the class to the nature of the repeating figure which occurs so often in Division. The utter helplessness of the operator when this anomaly occurs makes him very susceptible of learning the mode of dealing with it. In working the example—3·215 ÷ 1·5—on the lines already laid down, the pupils will reach a stage when 3 will repeat itself interminably in the quotient. This will be manifest if you continue the division process a few times to convince the class. Explain that to repeat a thing is to do it over again, and from this show that the term "repeater" is very appropriate when applied to such a figure as 3 in this quotient. Then show how its peculiarity is marked by placing a dot above the 3. Beyond this in the way of explanation you cannot safely go at present.

```
 1·500 | 3·215 |______
_______|

 1500 | 3215 | 2·143̇ | 3
______| 3000 |_________
        ----
         2150
         1500
         ----
          6500
          6000
          ----
           5000
           4500
           ----
            5000
            4500
            ----
             500 etc.
```

The Conversion of Vulgar into Decimal Fractions.—After Division is learned it will be quite an easy matter, as an extension of the rule, to instruct the pupils in the conversion of vulgar fractions into decimal equivalents. Review the characteristics of vulgar fractions, and referring to an example such as $\frac{5}{18}$, recall the fact that it may be analysed as 5 divided by 18. Formerly such a task would have been ridiculed as an impossibility, but now it will come within the scope of a rational operation. Let the pupils divide decimally. They will get $\cdot 2\dot{7}$ as a quotient. A number of similar exercises should follow.

It should further be pointed out that a vulgar fraction reduced to its lowest terms produces the same decimal equivalent as the original fraction. For example $\frac{12}{108}$ is decimally $\cdot\dot{1}$, and $\frac{1}{9}$, or $\frac{12}{108}$ reduced, is also equivalent to $\cdot\dot{1}$. The reduction of the fraction to its lowest terms minimizes the manipulations, but it does not affect the quotient.

With the opposite process—the conversion of decimal fractions into vulgar ones—the pupils are already familiar. They understand why ·25 is $\frac{25}{100}$, and they know that $\frac{1}{4}$ is of the same value as $\frac{25}{100}$. They will now be still more strongly convinced that ·25 is an equivalent for either $\frac{1}{4}$ or $\frac{25}{100}$, or any other vulgar fraction resulting from the multiplication of the numerator and denominator of $\frac{1}{4}$ by the same number.

Very interesting and at the same time valuable, because of the mental discipline and drill in accurate computation which it involves, will be an exercise of this sort :—"Add three tens, twelve hundredths, four thousandths, six hundred, forty." The difference between integral and fractional parts, and the local values of figures, will thus be strikingly contrasted and forcibly noted. When such a sum is offered for solution, there will be a tendency to perform the addition after the different items have first been converted into vulgar fractions. The calculation then becomes tedious and unwieldy. It lacks attractiveness, and while it may be considered profitable as an exercise in the manipulation of figures, it has little else to recommend it. The adding should be done decimally after the discriminative faculties have been employed in arranging the parts, and according to Vulgar Fractions only when there is an express injunction to do so. When the sum is written and wrought out in the form of a collective lesson it is specially beneficial to the class.

A Useful Form of Exercise.

The Conversion of Repeaters into Vulgar Fractions.—The scientific explanation of the conversion of repeating decimals into equivalent vulgar fractions is ever a serious matter. It falls within the field of study of the more advanced scholars, and consequently may not be attempted just yet with much certainty of success. Still it will not be wise to overlook the stereotyped mode of performing the exercise, which a converse process, carried out on a few special vulgar fractions, will tend to establish. Write on the board $\frac{4}{9}$, and with the aid of the pupils convert it into $\cdot\dot{4}$. Contrast this quotient with that obtained from the conversion of $\frac{4}{10}$, namely $\cdot 4$. So $\cdot\dot{4}$ is the same as $\frac{4}{9}$, while $\cdot 4$ is $\frac{4}{10}$. Deal with a few more pointed examples, and by their quotients you can easily establish the fact that every repeating figure has nine for a denominator in the vulgar fraction form. $8\cdot\dot{3}$ will, after conversion, be $8\frac{3}{9}$, and $8\frac{3}{9}$ is the same as $\frac{75}{9}$, so $\frac{75}{9}$ rendered decimally will be $8\cdot\dot{3}$. The equivalent of $\cdot\dot{2}\dot{5}$, according to rule, will be $\frac{25}{99}$, a nine being allowed for every repeater. Here two figures repeat, so a dot is placed over each of them. You might at this point explain that such an arrange-

The First Example.

ment is called a "circulating" or recurring decimal. These decimals will frequently occur. After their nature is established, make it plain that instead of dotting all the figures that recur, it is sufficient to put dots on the first and last ones of the circulator.

The Second Example.

The Order of the Steps.

The interpretation of a decimal fraction introduced by a non-repeating part may next be dealt with. Put $\frac{379}{990}$ on the board, and let the pupils turn it into decimal form, thus getting $\cdot 3\dot{8}\dot{2}$ as its equivalent. Follow this up by asking them to convert $\cdot 3\dot{8}\dot{2}$ into a vulgar fraction. After what you have told them they will naturally suggest $\frac{382}{990}$ as an equivalent fraction. A glance at the original $\frac{379}{990}$ will satisfy them that this is not the case; and you are now in a position to point out that 3, the non-repeating part, is subtracted from 382, thus making 379, which is the numerator, while 2 nines are placed in the denominator, necessitated by the presence of two repeaters in the numerator. A cipher is added because of the introductory 3. Again write a larger decimal, such as $\cdot 28\dot{6}0\dot{3}$, and prove that 28 has to be subtracted from 28603 to get the correct numerator, while the denominator must be represented as 99900 for reasons already stated. The fractional equivalent will thus be $\frac{28575}{99900}$. Before drilling the class on the conversion of similar fractions, write these rules for guidance :—(1) Subtract the non-repeating part from the whole decimal; (2) in the denominator put 9 for every figure that repeats and a cipher for every non-repeater. To impress them, challenge the pupils to repeat the rules from observation of the manipulations of the model. For a time they should be accustomed to test the value of their working by reconverting every answer into its original form.

Note on the Rationale.

The above results are obtained in a purely stereotyped fashion. They are simple because they are mechanical. As an investigation into the underlying principles would not conduce to more expeditious or accurate computations, it is omitted at this stage. In so far as the teachers are concerned, few, if any, could adapt their explanations to the intellects of young children; and as for the scholars, they are not likely to sigh for reasons for the various steps of the solution. The study of the rationale is more suited to the capacity of pupils undergoing an academic training of a more advanced character.

The Addition of Repeating Decimals.—The class is now in a measure prepared to add decimals containing repeating figures. Illustrate the process by such an exercise as this:—"Add $3{\cdot}5\dot{2}$, ${\cdot}\dot{1}\dot{5}$, and $15{\cdot}\dot{9}1\dot{2}$." First place the items under each other in the usual fashion. Then call attention to the fact that the chief thing to find out is where the repeating portion of the answer is to begin, and to what extent figures have to be repeated to determine the whole of the circulating part. A rule can be laid down. Note the number of recurring decimals in each part of the question. In the first line there is one, in the second two, and in the last three. Find the L.C.M. of 1, 2, 3. The pupils will find it to be 6. Next note the line in which the largest finite decimal part occurs. The first has one finite figure, the others none. Draw a vertical line after 5, and extend the repeaters in all three lines to 6 (L.C.M.) places after 5. Then draw another vertical line, and add an extra row in case a figure should have to be carried. Now add as in Simple Addition. The result is $19{\cdot}5\dot{8}6650\dot{2}$, and 866502, being the portion between the vertical lines, is the circulator of the answer. The process is simple enough. It is reasonable to infer that if a repeater occur in one of the data, the answer will be interminable. The same preliminary considerations are associated with Subtraction, which then proceeds upon the established lines, so that further reference to it is unnecessary.

3·5	$\dot{2}$	2	2	2	2	2	2
·$\dot{1}$	$\dot{5}$	1	5	1	5	1	5
15·$\dot{9}$	1	$\dot{2}$	9	1	2	9	1
19·5	$\dot{8}$	6	6	5	0	$\dot{2}$	

Multiplication with Repeating Decimals.—Although there is nothing very formidable connected with Multiplication exercises in which repeating decimals occur, it will be necessary to give instruction in the process. An example will demonstrate a methodical mode of arranging the facts. Here $3{\cdot}2\dot{6}$ is to be multiplied by ${\cdot}12\dot{3}$. In this in-

The Method illustrated.

stance both multiplier and multiplicand contain repeating figures. It will be obvious to the class that there is something new to be learned in connection with the rule, and hence their increased attention. When the obstacles to the working have asserted themselves, explain that they are got over by reducing the number containing a repeater to the form of a vulgar fraction. Here repeating figures occur in both numbers, hence both are reduced to vulgar fractions, and the solution effected solely on fractional lines till the result $\frac{1813}{4500}$ is obtained. This is the product of the quantities in the form of a vulgar fraction. The pupils are already in a position to convert this into decimal form. Let them do so on slates, getting ·402$\dot{8}$ as its equivalent. This looks like getting at the result round a corner, but after all it will be found the handiest and simplest way of dealing with such problems. When the repeater occurs either in the multiplier or the multiplicand, the quantity containing it is converted into a vulgar fraction, by which the remaining one is multiplied, on the principle that 2 × 6 gives the same product as 6 × 2. Sometimes the multiplicand will be such that the repeating figures may be extended a few times and a product obtained by ordinary Multiplication, which will embody the repeating portion.

$$3\cdot2\dot{6} \times \cdot12\dot{3}$$

$$\begin{array}{rcr} 3\cdot2\dot{6} & & \cdot12\dot{3} \\ \underline{2} & & \underline{12} \\ = 3\tfrac{24}{90}\,\Big|\,\tfrac{4}{15} & \times & \tfrac{111}{900} \end{array}$$

$$= \frac{49}{5\,\cancel{15}} \times \frac{\overset{37}{\cancel{111}}}{900}$$

$$= \frac{49}{5} \times \frac{37}{900}$$

$= \frac{1813}{4500}$ Ans. as V. Fraction.

$=$ ·402$\dot{8}$ Ans. in Decimals.

Division with Repeating Decimals.—This phase of Division is easy enough after Multiplication has been mastered. A similar conversion of the fractions has to take place till equivalents, in the shape of vulgar fractions, have been secured; then the divisor is inverted and, on multiplication lines, the quotient is obtained. As in the case of the preceding rule, the answer has to be converted into its decimal equivalent before it is complete. One thing, however, will have to be carefully pointed out, namely, that while in Multiplication either of the given quantities may be made the multiplier without altering the result, in Division no such liberty of choice is admissible. The given divisor must be adhered to as such in every instance. Nothing will tend so much to impress the steps as constant reference to the blackboard illustration. Consideration of the detailed consecutive operations will produce a far deeper impression upon the memory than the application of a few disjointed matter-of-fact rules previously learned by heart.

Decimal Parts of Money, Weights, and Measures.—A knowledge of Vulgar Fractions will be of special value when problems in money, weights, and measures, in which decimal fractions occur, fall to be considered. It is in their concrete form that decimals become essentially practical. By means of the foregoing rules facility in the solution of ordinary problems is acquired; and the better they are known the easier and more pleasant it will be to grapple with what follows. What, for instance, will appear formidable when the value of £6·245 has

First Example. to be computed? You have but to point out that as 6 is here an integer, it is 6 pounds, and ·245 is a fraction of a pound, whose value has to be discovered. Its equivalent vulgar fraction will be given as $\frac{245}{1000}$, or reduced, $\frac{49}{200}$. Hence the task is simply to find the value of $\frac{49}{200}$ of a pound. With the solution of such a problem the pupil is long ere this familiar. These hints should be abundant encouragement, leading up to intelligent success. But this method of working is somewhat heavy, and by no means the most expeditious. An abbreviated example should be wrought out alongside of the detailed one, and immediately after it, in order to show that the abridged operations are, after all, virtually those of the longer computation. This is the correct way. In the form of a vulgar fraction the question becomes £$\frac{6245}{1000}$. This converted into money, as in Compound Division, gives £6, 4s. $10\frac{3}{4}$d. $\frac{1}{5}$ as the quotient. Now place £6·245 nearly opposite £6, and point out that 6 being the integer stands for £6. Find the value of £·245 decimally, adhering to Multiplication throughout, and as you do so refer to the detailed working in the adjacent example. The same value will thus be obtained. Revise the working by the aid of a pointer, and

$$\begin{array}{llrlcr}
 & \text{£}6\cdot245 & & & & \\
= & \text{£}6\tfrac{245}{1000} & & & & \\
= & \frac{\text{£}6245}{1000} & & & & \\
 & & \text{£} & & & \\
= & \underline{1000|} & 6245 & \underline{|\,\text{£}6} & & \\
 & & \underline{6000} & & & \\
 & & 245 & & & \text{£}6\cdot245 \\
 & & 20 & & \longrightarrow & \underline{20} \\
 & \underline{1000|} & 4900 & \underline{|\,4\text{s.}} & \text{———} & \text{s. }4\cdot900 \\
 & & \underline{4000} & & & \\
 & & 900 & & & \\
 & & 12 & & \longrightarrow & \underline{12} \\
 & \underline{1000|} & 10800 & \underline{|\,10\text{d.}} & \text{———} & \text{d. }10\cdot800 \\
 & & \underline{10000} & & & \\
 & & 800 & & & \\
 & & 4 & & \longrightarrow & \underline{4} \\
 & \underline{1000|} & 3200 & \underline{|\,\tfrac{3}{4}\text{d.}} & \text{———} & \text{d. }\frac{3}{4}\cdot\frac{2\cancel{0}\cancel{0}}{10\cancel{0}\cancel{0}} = \frac{1}{5} \\
 & & \underline{3000} & & & \\
 & & \frac{2\cancel{0}\cancel{0}}{10\cancel{0}\cancel{0}} = \frac{1}{5} & & &
\end{array}$$

draw connecting lines to indicate the intimate connection between the two operations placed side by side. Both modes of computation are equally lucid and effective; but the latter is the more finished of the two, and should, as a rule, be adopted after it is comprehended through the medium of the former detailed operation.

Second Example.

As a sequel to the above, the mode of finding the value of ·256 of 2 cwt. 2 qrs. might be explained. The actual manipulations are already known; it is the order and arrangement of them that have to be indicated. Indeed, after the pupils can do Vulgar Fractions, and the elementary rules in Decimals, the teacher's work becomes more directive than instructive. Here 2 cwt. 2 qrs. are to be multiplied by ·256. 2 cwt. 2 qrs. may be set down as 2·5 cwt. It is easy to multiply this by ·256. Continue the reduction as in the annexed example, thus getting as the result 2 qrs. 15 lbs. $10\frac{22}{25}$ oz. After the decimal equivalent of 2 cwt. 2 qrs. is discovered, the rest of the solution is but the application of operations already known. Should it prove difficult to represent the multiplicand in decimal form, the multiplier will have to be converted into a vulgar fraction, and the solution effected on the lines of Multiplication of Vulgar Fractions. The backward pupil should be encouraged to adopt the plainest mode of working, tedious it may be yet easily understood. The smart one, on the other hand, will invariably show a tendency to take short cuts in his manipulations. Speed combined with accuracy ought to be encouraged by all means. After the underlying principles of the rule have been dwelt upon, in so far as it is judicious the subsequent exercises should tend to foster increasing mental activity and greater inductive effort. Arithmetic materially strengthens the reasoning faculties. Specimens of a variety of useful problems might here be given, but your own acumen and grasp of the physical and intellectual capacities of your scholars will guide you in selecting such problems embodying the foregoing principles as they may reasonably and profitably be expected to perform.

```
      2 cwt. 2 qrs. × ·256
= 2½ cwt., or 2·5 × ·256
=            2·5 cwt.
             ·256
           ------
              150
             125
             50
           ------
cwt.  0·6400
          4 qrs.
      --------
qrs.  2·5600
         28 lbs.
      --------
       44800
       11200
      --------
lbs. 15·6800
         16 oz.
      --------
       40800
       6800
      --------
```

$$\text{oz. } 10\cdot\frac{88\cancel{00}}{100\cancel{00}} = \frac{22}{25}$$

COMPOUND PROPORTION.

Compound Proportion is only an extension of the simple rule, and one that can readily solve problems by the latter will have little difficulty in coping successfully with those of the former. The main point of difference is that Compound Proportion involves the consideration of more than one quantity in the first and second terms. While not overlooking the scientific aspect of the statement, you will have to lay before the pupil a method of isolating the data of the problem with a view to facilitate his grasp of the facts, and thereby enable him to state the terms with accuracy. The following problem may be thus arranged :—" If 8 men build a wall 100 yards long in 6 days, working 8 hours a day, how many yards of wall will 24 men build in 9 days, working 10 hours a day ? " Write this on the board, and underline the quantities ; then put them under the two headings, *Given* and *Wanted*, keeping pairs of the same name in the same horizontal line. This done, it will be obvious that yards of wall are required. The × opposite 100 yards shows this. Hence 100 yards will be the third term. The first question now is : If 8 men build 100 yards, how many could 24 men build ? Point to the items as you say this. The pupils will conclude that 24 men should be the second term, and 8 men the first. The next question will be : If 100 yards are built in 6 days, how many can be built in 9 days ? More. This also will give the statement 6 : 9, which will appear under the preceding items. Finally : given 100 yards when they work 8 hours a day, wanted how many yards when they work 10 hours a day. More ; and hence the third and last statement is 8 : 10. Here explain that it now appears that each of the first and second terms is made up of three items, and that when the three are multiplied together in both cases, products are obtained which resolve the subsequent steps of the calculation into a mere exercise in Simple Proportion. This will

The Method illustrated.

Given.	Wanted.
8 men	24 men
100 yards	× yards
6 days	9 days
8 hours	10 hours

$$\begin{array}{lcl}
\text{Men } \cancel{8}\,1 : \text{men } \cancel{24}\,3 & :: & \underset{25}{\cancel{100}}\text{ yards.}\\
\text{Days } \cancel{6}\,2 : \text{days } \cancel{9}\,3 & & \\
\text{Hours } \cancel{8}\,4 : \text{hours } \cancel{10}\,5 & & \\
\hline
\underset{2}{\cancel{8}} \quad : \quad 45 & :: & \overset{\text{yds.}}{25} \\
 & & 45 \\ \cline{3-3}
 & & 125 \\
 & & 100 \\ \cline{3-3}
 & & 2\,\boxed{1125} \\
 & & 562\tfrac{1}{2}\text{ yards} \\ \cline{3-3}
\end{array}$$

$$\text{or } \frac{\overset{3}{\cancel{24}} \times \overset{3}{\cancel{9}} \times \overset{5}{\cancel{10}} \times \overset{25}{\cancel{100}}}{\underset{1}{\cancel{8}} \times \underset{\underset{1}{\cancel{2}}}{\cancel{6}} \times \underset{2}{\cancel{8}}} = \frac{1125}{2}\text{ yds.}$$

$$= 562\tfrac{1}{2}\text{ yards.}$$

be at once obvious. But multiplying terms together might be a serious operation, so they may be cancelled, as in the appended statement, to abbreviate the amount of figuring. When this is done, the terms now stand as 2 : 45 :: 25. From this the fourth proportional, 562½ yards, is found in the usual way. After working a few similar sums, it will be useful to show the pupils how the manipulations may be effected on fractional lines. This can only be successfully done by referring to the detailed statement which should appear above. Point out that 24, 9, 10, and 100 have really to be multiplied together, and the product divided by that of 8, 6, and 8. Then explain the nature of the cancelling, which, while it is undoubtedly convenient, produces the same result. There is an air of finish about this which, when explained after the detailed statement, makes it both profitable and attractive. The points already noted in the case of Simple Proportion, which are essential to the successful treatment of the rule, are still of paramount importance, so that further special reference to them is unnecessary. The problems which may be set embodying Proportion in all its various intricacies and combinations are so numerous that they cannot be dwelt upon here. You have presented to you the outlines of the first and most important steps, a proper grasp of which denotes progress by the pupils. It will occasionally be useful to present problems in which the first or second term is omitted. It will be found most convenient to take up this rule after Vulgar Fractions.

SIMPLE INTEREST.

Simple Interest may easily be taught immediately after Compound Proportion. There is a popular method of working Interest which is so unnecessarily mechanical and incomprehensible, that the child attaches no importance to the rule beyond viewing it as a special discipline in the art of figuring. Whatever excuse may apply to a perfunctory task, or to the execution of certain legitimate and stereotyped manipulations in a particularly stiff rule, is certainly inadmissible in the case of Interest. It admits of being interpreted and manipulated with much lucidity and precision, when the pupils are intellectually equal to the task. Perspicuity is a point to aim at in all instruction. Not only is ability to perform a certain series of operations which will produce a desired result to be desiderated, but its value is also enhanced if the pupil has a rational comprehension of the scientific principles involved. All exercises in Simple Interest should be executed on the lines of Compound Proportion, in order that no error may occur either in interpretation or computation. Before entering into the working of an example, convey orally to the class some idea of the meaning and application of the terms "Interest," "Principal," "Amount," etc. Especially urge upon them that interest is money paid for the loan of money, and that it is reckoned at so much for £100 for a given time. Then write this example: "Find the interest on £250 for 3 years at the rate of 5 per cent. per annum." Explain that £250 is the money put into the bank for 3 years, and that for every £100 so deposited for a year, £5 is to be paid. *Per cent.* means "for £100," and *per annum* "for a year." The question may next be written in full, so as to appear as a problem in Compound Proportion. "What is the interest on £250 for 3 years at the rate of £5 for £100 for 1 year?" Underline the quantities, and proceed to arrange them under the headings *Given* and *Wanted*, with a view to facilitate the stating of the terms. It is obvious that the thing wanted is interest, so the interest given, namely £5, will be set down first in the third term's place. Then given £5, the interest of £100, wanted the interest of £250. More; hence £250 is the second term and £100 is the first. Finally: given £5 as interest for 1 year, wanted how much for 3 years? More; so 3 years will be set as the second term and 1 year as the first. The

Taught as Compound Proportion.

Terms to be explained.

The Mode of Teaching.

Given.	Wanted.
£5 interest.	× interest.
£100	£250
1 year	3 years

$$\begin{array}{lclcl} \pounds\cancel{100}\,2 & : & \pounds\cancel{250}\,5 & :: & \pounds5 \\ 1\text{ yr.} & : & 3\text{ yrs.} & & \\ \hline 2 & : & 15 & :: & \pounds5 : \pounds37,\ 10s. \\ & & & & 15 \\ & & & & 2\,\boxed{75} \end{array}$$

Interest = £37, 10s.

cancelling and subsequent steps of the solution are precisely those of Compound Proportion. The interest required is thus £37, 10s. Apart from the fact that there is something tangible and rational in such an exercise, this particular mode of dealing with the rule will become more and more useful when such a problem as this has to be solved: "In what time will £150 amount to £400 at the rate of 4 per cent. per annum?" Rewritten the question will be: "In what time will £150 amount to £400, if £100 amounts to £104 in 1 year?" The stating is now easy; yet this exercise is essentially illustrative of the value of a teacher in arithmetic. He is a pupil of considerable parts who finds out the "catch" in the original form of the problem—namely, that £100 amounts to £104 in a year. Once it is pointed out, it is a source of much satisfaction to the pupil. As the variety of such problems is limited, the directive work devolving upon you as teacher is necessarily prescribed. Your subsequent scrutiny of the pupil's effort will be to see that it is not performed in a perfunctory or slipshod manner. The two main points to keep in view in teaching Interest are—(1) the question has to be rewritten in full so as to make the necessary terms perfectly clear; and (2) *every problem* in Interest is to be solved by Compound Proportion. If you make your pupils adhere to these, success is almost certain, no matter what form the problem may assume.

Points to be observed.

CONCLUDING REMARKS ON TEACHING ARITHMETIC.

In conclusion, a few things might be noted in connection with the teaching of arithmetic. Your own bearing and temperament will have much to do with your success as a teacher. You should be resolute and confident in your air, showing yourself heartily engrossed in your work and thoroughly conscious of its importance. If this be your own feeling, the pupils will not fail to catch the stimulative impulse. A bad temper is specially undesirable. It puts your own mental equilibrium out of gear, reacts upon the pupils, and in their flurry they lose control both of their reasoning

The Teacher.

faculties and power of manipulating the figures. If you can effect little in your calm moments, you may rely upon effecting still less when you lose self-control.

The Pupils.

With regard to the pupils, no frame of mind is more conducive to the speedy assimilation of a rule than that which is calm and undisturbed. While it is vigorous it should be susceptible and impressible, and you should endeavour by your teaching to sustain these qualities. Under instruction the pupils ought to be in a condition of arithmetical abandonment, and the discipline should be as nearly perfect as possible. This branch is of such a nature that not a step can be lost, not a link omitted. One rule fits into the other in the most perfect fashion, the more advanced ones embodying the exercise of preceding instruction. Hence the reason why every child in the class should devote the fullest attention to the teaching. Links that happen to be lost can only be picked up by casual reference to them. Unless you have absolute control of the pupil's mind, the methods herein advocated can hardly be successfully carried out. The pupils should be so arranged when they work independently that it will be all but impossible for them to copy. When you test their progress on paper, clandestine assistance may be prevented by using two sets of sums which may be distributed alternately. Take every precaution to insure that the pupil is not injuring himself and deceiving you at the same time.

The Instruction.

Arithmetic, like most other branches, is mainly taught through the eye. This necessitates a teacher and a blackboard. Over-pressure is in the majority of cases but a synonym for non-teaching. Let the models you work out on the board with the aid of the class be full to the extent that every step is clearly stated and obviously leading up to the one which follows it. Take care not to load the board with subsidiary and irrelevant matter, thereby abstracting the attention of the class from the vital points at issue, and imparting a loathsome idea through the startling magnitude and complexities of the computation. Wipe off all extraneous details as soon as they have served their purpose. Arrange the illustrative problems carefully and methodically. The fact that one step hinges upon another proves the necessity for adopting a natural order or sequence in the disposition of the constituent operations of the solution. Take plenty of time with your model. Ever keep in mind that *you see the rationale, but the pupils don't*, although they are striving, it may be, to their utmost to grasp what you are endeavouring to put before them as forcibly and succinctly as you can. Your language to this end must be simple and homely as Saxon tongue can make it. The pupils should not be troubled with your diction, but should comprehend at once the idea which your exposition is intended to convey. It should likewise be noted that *upon their grasp of certain points depends the pupils' knowledge of the entire rule.* A solution effected empirically is always unsatisfactory. A plainly wrought-out example should be exhibited till the rule is thoroughly mastered. It then becomes your function to explain deviations from it. Mistakes occurring in the mere manipulation or figuring are apparent to the pupil as soon as they are pointed out, but an error in the method can only be put right after you have enlarged upon it on the board. One rule should be mastered before another is taken up. So much depends upon a knowledge of antecedent operations, that accurate and lucid work is impossible without this essential familiarity with subsidiary computations. Whenever the pupils fail to understand, the work becomes "cramming." Such terms as "product," "divisor," "ratio," "repeater," etc., should invariably be explained in the order of their occurrence. A certain terminology attaches to arithmetic which is inseparable from the language you use in teaching; hence it is important that the vocabulary of the pupils should be made as perfect as possible, in order to facilitate their comprehension of your explanations. Drill in mental arithmetic in almost every rule is most important, both as an exercise in rapid computation and as a special mental discipline, the benefits of which will crop up in every branch that is studied. Encourage your pupils to approach you with their difficulties, and take pleasure in giving each perplexing element your earnest unstinted attention. If it concerns the individual, explain it to him privately; if the class collectively, deal with it on the blackboard.

It is quite inexpedient and unreasonable that a child's efforts in arithmetic should be confined to the study and manipulation of abstract numbers. No matter what pains you may have bestowed upon the imparting of intelligible explanations, or how thorough a grasp the pupil may have got of the principles which underlie an accurate solution, you will find him in the earlier stages in particular making his calculations mechanically yet correctly. Familiarity with a stereotyped rule tends towards an artificial mode of handling it. Still at certain stages an effort of reason is necessary. When the rule in its plainest aspect has been taught, problems bearing upon it should be freely dealt with. These, by reason of their intricacy, supply a certain intellectual discipline; and while the pupil is trained to reason independently, he is introduced to such problems as will face him when he essays to grapple with those commercial transactions which occur in the daily life and experience of individuals. Money—the medium through which the interchange of commodities is effected—he may have to earn, and what more natural than that he should be taught to deal with it in its two phases of income and expenditure. This demands an effort of intellect and of independent thought, which is specially beneficial to the memory. In teaching, your aim should be to fit the pupil for the sphere in which his life beyond the school is likely to be cast. Arithmetic in its economic aspect is essentially practical and applied in its nature. The ability of the pupil to solve a problem will be in exact proportion to his intellectual capacity and power of concentrating his thoughts upon a definite point. It is difficult to get scholars to think deeply and to sustain their thoughts for a time. Problems bespeak individual exertion. You cannot think for the child, though you may determine the duration and current of his thoughts. Be studious that whatever you do as instructor—as one well versed in the subject—shall be clearly reflected in the efforts of your pupils.

CHAPTER VI.

GRAMMAR.

PART I.

INTRODUCTORY REMARKS.

THERE is undoubtedly a proper and natural order in which the study of any subject may be pursued, but it is often difficult to hit upon it. The English language is capable of being studied in at least two distinct ways. It may be dealt with in its constituent words, the study of the nature and relations of which is popularly called "parsing;" or it may be considered in its groups of words, expressive of the thoughts of the speaker. This may be called the analytical aspect, in contradistinction to the other which is synthetical. Perhaps a judicious combination of both lines of study will be most profitable and stimulating. The one may be made to assist the other. It is hardly necessary to point out that children speaking a language have an advantage over those who do not, when they come to study it. Again, children as well as adults deal in groups of words expressive of their ideas, nor do they give much or any consideration to the nature of their constituent elements. They know the meaning and application of them in their various combinations, and that is sufficient. An extensive knowledge of words and their meanings will doubtless facilitate expression, while familiarity with the grammar and structure of the language will give accuracy to it, as well as an air of erudition which humanity is bound to acknowledge and respect. A certain amount of thought precedes what is said.

What a child reads occasions thought, and, as a result, a desire to speak or communicate with others. The thinking is done spontaneously, unconsciously, and in sentence form, as a rule, and he gives expression to his thoughts in his thinking vocabulary, so to speak. From the first he is accustomed to speak in sentence form. It is therefore to be taken for granted that the child can speak; that he is possessed of a vocabulary, limited no doubt, but nevertheless sufficient to give expression to his thoughts. What he says is in sentence form. The teacher, who, it has been pointed out, should train him to answer in sentences, is more accustomed to hear him speak in the responsive or indicative form than in the interrogative. Keep in view then that it is the study of the language he speaks to which you are to introduce him. He knows the language, he thinks in it, he uses it to tell his thoughts, and it is uttered in sentences. Therefore begin with what he uses, *the sentence*, and draw him naturally into the study of speech.

The child speaks the language.

THE FIRST STEP.

A pleasant, homely, and encouraging commencement is of immense value. Arrange your class so as to get a good view of the board, and open the subject somewhat in the form of a narrative as follows :—" Each of you was once a baby, unable to speak, and not able to know what your father or mother said to you. But by-and-by, because your parents were always speaking to you, you learned to say a word or two, as well as to know what was said to you. When your mother said, 'Take a drink,' you came to know what she wanted you to do, because she put a jug to your lips as she said the words. You also got into the way of thinking about what was said, and you began to think of things yourself. As you grew older, you learned to tell others what you were thinking about. Then you were sent to school to be taught to read words in books. These words tell you what other people said and did. Next you thought about what you read, and sometimes spoke about it. When you spoke you just said the words that you were thinking. Let me show you that this is true. **Thoughts imply words.** You read about the cat that did not kill the bird, and after doing so you think 'she was a very good cat;' but these are words, so remember then that you think in words. Again, when you wish to eat you think to yourself, 'I am hungry.' You say these words, which you thought, to some one, and he knows what you want. Well, then, you cannot think without words, and I cannot let you know what I think unless I use words. We are now going to talk about the words which we use when we think and speak.

"You see a man cutting a tree, and you think to yourself, 'The tree will fall.' [Write it.] If any one is with you, you say to him, 'The tree will fall;' just what you thought. [Repeat the sentence very slowly and deliberately, that the class may have time to weigh the statement and accept the idea conveyed.] **Thoughts are spoken.** But you notice that in this thought there are more words than one. Everybody thinks in a few words at a time, and hardly ever in one word. When you hear the school bell ring you think, and perhaps you say to the one next you, 'I must go into the school.' [Write it.] This also shows you that boys and girls say what they think. Older people do the same. The rule then is to think first, and then to speak. This is as it should be. Now look at this sentence to which I point, 'The tree will fall.' You did not say to any one 'tree,' and nothing more; nor did you say 'will fall' only. Why? Because he would not have understood what you meant or wished him to know. If you had said 'tree' only, he would likely have said, 'What about tree?' He would not know whether you meant to say, 'The tree has green leaves,' or, 'The tree will fall.' Again, if you had only said 'will fall,' he would not know whether you meant that you were going to fall, or the tree was going to fall. If you said 'tree' only, or 'will fall,' and nothing more, he would say you were speaking nonsense. **The Sentence.** So when you speak, a number of words are required to make sense; and when you say words that are sense you are said to make a sentence. I shall write this plainly. [Write 'A sentence makes sense,' and bid the pupils repeat the sentence a few times simultaneously.] When you say anything about a thing, you make sense or a sentence. Here is a piece of chalk. Look at it. You are all thinking about it. One thinks, 'It is white;' another, 'It is short;' and another, 'It writes well.' [Write these on the board.] Every one of such thoughts is sense, and is therefore a sentence. But 'white,' 'short,' and 'writes' [point to them], would not have made sense without the other words. We have now found that *we think about things, then we speak about them, making use of sentences or sense.*" Such will be the nature of the introductory lesson, which you can rehearse once or twice to make clear the facts summarized in the last sentence. Challenge the pupils to make simple sentences about objects you name, and invariably write their efforts on the board for the observation and criticism of the class. Such a task is easy; and while it is enjoyable, its practical utility is considerable.

THE SECOND STEP.

Open next lesson by again writing the sentence, "The tree will fall." Reiterate the fact that the statement is *sense*, and is on this account called a sentence. Then continue: "We are now going to look at the words to see what there is about them that makes them sense or a sentence. Here is a book made up of leaves; it is not a book till they are all put together. Here is sense or a sentence made up of words; it is not sense or a sentence till they are all put together. Now look carefully at the words. [Read them slowly.] You notice that there is something spoken about. What is it? 'Tree.' [Underline it.] And you see also that something is said about the tree. What is it? [Read the sentence.] 'Will fall.' [Underline 'will fall.'] I shall now draw a line between 'tree' and 'will fall,' to show that the sentence is in two bits or parts. Above each of the parts I shall write what it is.

The two Parts of the Sentence.

Something spoken about.	Something said about it.
The tree	*will fall.*
1	2

These two parts, then, are in every sentence we speak. If one of them is away, the other makes nonsense. I shall now write in a better way what has to be in every sentence, and you must commit to memory what I write—

A Sentence {1. Something *spoken about*—(The tree).
2. Something *said about it*—(will fall)."

After this draw a vertical line on the board, put the headings above it, one on each side, and after explaining by means of an example what you wish the pupils to do, write a noun in the subject column, and get from them suitable predicates. Vary the exercise by giving a predicate, and soliciting subjects. As soon as a sentence is completed review its essential parts, and dwell upon the idea of *sense* implied in the statement. With a little care and considerable practice the scholars will evince much success and eagerness in the task. This discipline is specially meant to impress upon them the essential fact that every sentence consists of two parts. Make them repeat simultaneously and even write the two parts—namely, *something spoken about*, and *something said about it.* These must be intelligently grasped before the terms *Subject* and *Predicate* are explained.

THE NATURE OF THE SUBJECT AND PREDICATE.

At next lesson write the *same* sentence—"The tree will fall"—and after rehearsing the nature of its two constituents, to insure that the pupils remember them, proceed:—"You hear of people going to hear a lecture, or a person speaking about something. The something he speaks about is called 'the subject' [write *Subject*], for the subject is what he speaks about. But you see that the something spoken about is part of a sentence. [Point to it.] We shall now give it this new name. Let us call it the *Subject* of the sentence." Write *Subject* under "The tree," to show its identity with the explanation written above it—namely, "Something spoken about." Then tell them that you are to give them a name for "Something said about the subject." Write the word *Predicate* under "will fall," and impress it by simultaneous repetition. It will be injudicious to explain its nature too fully just yet. It will be sufficient if the pupils remember the word, and have a general grasp of its function. The arrangement to be committed to memory will appear thus:—

A Sentence { 1. Something spoken about—*Subject.*
2. Something said about it—*Predicate.*

This the pupils might afterwards copy on slates. In concluding the lesson, put a variety of questions such as these—What is a sentence? How many parts must it have? What is a subject? What is something said about the subject called? Write a list of short sentences, and drill them in detecting the two main parts in different positions. When they can readily detect these, what is called the *Object* in the sentence may be explained.

THE OBJECT EXPLAINED.

The precise nature of the object can best be arrived at through special reference to the predicate, and after the subject has been identified. The predicate, in the sense of a verb, is really the backbone of the sentence, for the other parts, as it were, cling to it. It should generally be detected first, as subsequent exposition will show. Perhaps it is the easiest part to hit upon. Write on the board, "The cat killed the mouse," and with the aid of the class establish the fact that it is a sentence—firstly, *because it is sense;* and secondly, *because there is something spoken about as well as something said about it.* Then proceed: "What is spoken about in this sentence? *The cat* and *the mouse.* [Underline them.] But a sentence has generally but one subject. Let us now find out which of the two is the subject. We shall look for the predicate first. The predicate was found to be a *doing* or *saying* word. What is the doing or saying word here? 'Killed;' therefore 'killed' is the predicate. [Write *Predicate* above it, and draw a vertical line before and one after it.] You now tell me that 'the cat' is the subject. Why? Because it is before the predicate. That is generally, but not always, the place where the subject is. I am to show you another way of finding out the subject, when you know the predicate. Ask the question, '*What killed?*' and you will answer 'the cat.' Asking this helps us to find the subject at once. I shall write *Subject* above 'the cat,' just

The leading Questions.

as I did *Predicate* above 'killed;' and above *Subject* I put '*what*,' the little word that helped us to find the subject. [Write a few sentences below, and exercise the pupils in asking the proper questions suggestive of the subjects, till the task becomes impressed and simplified.] Let us now find out what 'the mouse' is, for it also gets a name. 'The mouse' tells what the cat killed. If I asked, '*Killed what?*' you would say 'the mouse,' just as you say 'the cat' when I ask, '*What killed?*' What was killed is called 'the object.' [Write *Object* above 'the mouse,' and over it put '*Killed what?*'] We have now found that to get the subject we ask 'What killed?' and to get the object we ask 'Killed what?'" Call special attention to the positions of "*what*," which you may underline. The position of it is really the key to successful analysis. The steps, then, are—(1) Find the predicate; (2) put "what" *before* it to find the subject; (3) put "what" *after* it to find the object. Much practice will very soon accustom the scholars to put with accuracy the various questions suggestive of the parts. The above sentence will now appear in this form:—

What killed?	(Doing)	Killed what?
Subject.	*Predicate.*	*Object.*
The cat	killed	the mouse.

Although the use of "what" in such connections may sound peculiar when names of persons and pronouns form the subjects and objects, it will be best in every way to adhere to it. Thus, in analysing such a sentence as, "The boy loves his sister," after "loves" is identified as the simple predicate, the question *What loves?* will at once suggest "the boy," while *Loves what?* will lead up to "his sister." This is all you want.

The Verb containing an Auxiliary.

By-and-by a sentence in which the verb contains an auxiliary might be explained. It will strike the pupils as quite natural in the sentence "The girl was reading a book" to accept the two words "was reading" as the predicate in preference to either of them taken separately, when the idea would be less complete. The usual questions with "what" will bring out the "subject" and "object." At first the pupils should be accustomed to put the questions aloud, till aptitude is secured, after which they may be asked mentally.

The Passive Verb.

After the progressive form of the verb has been dealt with, the passive will occasion a little trouble. In the sentence, "My finger was cut by a knife," the predicate "was cut" will present no difficulty, nor will the question *What was cut?* fail to suggest "my finger" as the subject. The fact that "a knife" will not answer such a nonsensical question as *Was cut what?* which the pupils will readily view as absurd, will convince them that in such a sentence no object occurs.

The Instruction applied.

Complicated subjects and objects must be introduced warily, and only after what precedes has been thoroughly assimilated. To fill the board with elliptical sentences, such as "The man ...... cat," "...... writes dictation," "The tailor made ......," and set the pupils to supply and name the omissions, will be very instructive. Question them freely on the words suggested, to make sure that they are not guessing. Into the sentences pronouns may safely be introduced. The pupils' familiarity with spoken English will enable them at once to attach the idea of personality or substantiality to the pronominal part. Now that they have obtained clear notions of the nature of the subject, predicate, and object in a sentence, it will follow as desirable that they be made acquainted with the three leading parts of speech—namely, the noun, verb, and adjective.

THE NOUN EXPLAINED.

It must be confessed that more difficulty will be experienced in laying down a rule which will unfailingly enable children to recognize nouns than in teaching them practically to select them. The possibility of arriving at a comprehensive definition, serviceable at all times and clearly understood, is utterly hopeless. In this instance, as on all subsequent occasions, you have to educate the pupils up to a good practical definition, by no means exhaustive in its application, yet sufficient to guide those making their *début* in the slippery field of grammar. Now that the analytical exercise has been performed till the essential elements of the sentence have been grasped, the identification of the subject or the object with what is called a *noun* may be attempted. Write the sentence, "The man lost his hat at the foot of the hill," and let the pupils analyse it as heretofore, thus making "lost" the predicate, "the man" the subject, and "his hat" the object; then continue: "You see that a person is named in the sentence as well as some things. [The pupils will readily name 'man' as the person, and 'hat,' 'foot,' and 'hill' as the things in the sentence. Underline each as it is named.] I wish you to think about the words I have marked. You can say something or make a sentence about each of them. [Let them do this.] Well, those words which are names of persons and things, and which we can speak about, are called *Nouns.* [Write *Noun.*] 'Noun' means 'name.' All these marked words which are 'names' are therefore to be spoken of as 'nouns.' [Here pause that the class may accept at leisure this new revelation.] What is a noun, then? *It is the name of anything that can be spoken about.*" Write this statement, and after the pupils have repeated it simultaneously and written it a few times, let it be committed to memory. It is a sufficiently useful definition for a child to carry and apply, though it may not be strictly correct. Rehearse the foregoing exposition, using different sentences, till familiarity with the new term and its function is attained. On the board the sentence should have this appearance :—

The Noun defined.

Subject.	Predicate.	Object.	•
The man	*lost*	*his hat*	*at the foot of the hill.*
Noun.		Noun.	Noun. Noun.

After this, from their having analysed the sentence, the pupils will have no difficulty in understanding that either the subject or object in a sentence may be a "noun." It will be necessary to call their attention strongly to this fact, and give them time in which to digest it. Your exposition may next be applied by asking them to detect nouns occurring in the reading lesson. This exercise they will relish, and good progress will be made. Acting upon the above definition, they will readily enough specify *names of objects* as nouns; but when the idea of substance or tangibility is not present—as in the case of "whiteness," "justice," and generally of abstract names—you may find them provokingly slow to recognize these as nouns. The more you urge the possibility of their being spoken about, and the more the knowledge of other parts of speech increases, the less difficulty will be experienced in accepting them as nouns. For children of slow comprehension or vacillating memory any simple mechanical guide to the detection of the noun will be helpful. For instance, by referring to abundant examples in the reading book, impress the fact that after "a," "an," and "the," there is generally some person or thing spoken about, which of course must be a noun. In inverse proportion to the growth of the knowledge of the function of the noun will be the consideration of these guiding marks. Intelligent effort will ultimately make their aid uncalled for. It is not difficult to impress the fact that names of places are nouns, as well as names of persons and things, for the definition is applicable to all three. The identification of the predicate as a "verb" may next be explained.

The Articles precede the Noun.

THE VERB EXPLAINED.

Write the sentence, "The man lost his hat." Set the children to analyse it, thus getting "lost" as the predicate, "the man" the subject, and "his hat" the object, as before. Simply tell them that you are to give them a new name for "a predicate," and that it is a *Verb*. Write *Verb* below "lost," to associate it with the doing or telling word. Then put down what a verb is in the form of a definition, thus:—*A verb tells something about the subject.* This can be emphasized by reference to the function of "lost" in the sentence. It will be well, at the same time, to indicate that a verb is a doing or saying word, as in a measure explanatory of the real definition. The pupils will commit the definition to mem-

The Verb defined.

ory, till each one can repeat it and gives evidence that he understands it. In the sentence, "The girl was lifting the cat," two verb words occur. The pupils know from previous instruction that these constitute the predicate, so they will have little difficulty in accepting each of them as a verb after some explanation.

An intervening Adverb.

When the sentence takes this form, "The boy had often lost his book," where the verb is separated from its auxiliary by an adverb—"often"—you will have to point out that "often" is not a doing or telling word, and that therefore it forms no part of the verb. Explain further that such a verb as "had" often goes with a more obvious one, such as "lost;" hence the real verb or predicate is "had lost." A knowledge of the function of the adverb will effectually clear up the matter. A line might be drawn round "often," to emphasize its isolation from the verb.

Auxiliary Verbs.

The verb "be" in its various moods and tenses, and, in fact, all auxiliary verbs, are troublesome to beginners. When you put before them the sentence, "The men were happy," the fact that it is a sentence they readily accept, because it makes sense; but the presence of a doing or acting word is scarcely self-assertive. In such a case they have a difficulty in hitting upon the predicate first; and if they do succeed, it is at first more apt to be guessed than not. At the same time, it is easy after what has been said to get from them that "the men" forms the subject, and "were happy" the predicate, as being the two distinct parts into which the sentence divides itself. By abundant examples and repeated expositions you will convince them that although "were happy" is really the predicate, as being what is said of "the men," the verb in it is "were," which is accepted either as a verb by itself or as part of one. Nor will they find it difficult to remember that the words "is," "are," "was," "were," etc., are each of them often joined to another verb to constitute a predicate, which a glance will show them is what is said of the subject. It will also help them to understand this if you point out that such a word as "is" or "are" tells nothing of itself in most cases. It is very easy to detect these verbs once the predication parts are recognized. It will be a useful and by no means a hard task, after writing on the board a list of common auxiliaries, and explaining and exemplifying their usage, to set the pupils to copy and commit the verbs to memory. His consciousness that these will be of daily occurrence as he deals with passages selected from the reading lesson will be stimulus sufficient to induce the child to master them as soon as possible.

Verbs Transitive and Intransitive.

It will not be difficult, and it may be useful at this time, to point out that when a verb has an object after it it is called *transitive*, and when no object occurs it is *intransitive*. The terms are more difficult to remember than the idea conveyed is to grasp. Write them on the board, and give special drill to impress their significance. More will be said of these verbs at a later stage.

The Simple Sentence.

It will also be natural to explain here that a sentence containing a subject and predicate, with or without an object, is called *Simple*. The first steps in grammar may now be considered taught. The adjective next falls to be dealt with.

THE ADJECTIVE EXPLAINED.

Remarks on the Definition.

Care must always be taken to insure that the scholars understand the definition of the part of speech before they are asked to commit it to memory. In the grammar an adjective is sometimes defined as "a word which qualifies a noun." You must not suppose that by merely repeating this statement till it is remembered, the pupils' comprehension of it is necessarily guaranteed. Although the teacher may have an idea of the import of such a definition, it is dangerous to imagine that the interpretation and intelligent application of it falls within the capacity of the pupils, in whose ears he keeps it ringing from day to day. More than one reason might be adduced to explain how persistence in the mechanical and incomprehensible exercise of selection may secure results bearing a semblance of success; but one thing is certain, namely, that the pupils' accuracy is not by any means attributable to the application of such a definition. Until they get a thorough grasp of the adjective through its function in the sentence, no reliance can be placed on what may be deemed little better than a series of guesses. No child does or can begin his study of the adjective by applying any such enigmatical statement. He has to be educated up to a practical definition. Approach the subject logically. The children are already unconsciously familiar with the effect of the adjective, through the daily application of it in ordinary colloquial phrases. It will now be natural to give them a conscious knowledge of its function through the medium of a complete sentence.

Write on the board the sentence, "The bad boy cries," and under it, "A good little girl fell." Let a pupil or two read the sentences, that every one may be satisfied that each group of words constitutes a sentence. Then let them be analysed, the predicates being detected first, and after these the subjects. "Boy" and "girl" will be accurately set aside as nouns; but hesitancy will occur when you call attention to the words "the," "bad," "a," "good," and "little." Wipe off "boy" in the first sentence, and read it aloud without it. The class will at once feel that "The bad cries" is not a sentence, for it is not sense. Impress upon them the fact that "the" and "bad" are of no use whatever without the noun "boy," and that consequently they are, as it were, joined to it, and help to make sense of what is said. They are thus words *added to* the noun "boy." Ask some one to read the second sentence after you have taken out "girl." Again it will be obvious that the words make nonsense, and that a noun is necessary to which the words "a," "good," and "little" may be added. Summarize what you have taught by pointing out that there are certain words which are *added* to nouns, and which make nonsense without the nouns. In the next place proceed to establish their function or use. Delete "the bad," and read the first sentence without it. "Boy cries" does convey an idea to the pupil's mind, and he at once thinks that *some* boy is crying. Accepting this, you will clearly show that by adding "the" to "boy" you, as it were, point to or pick out *a particular one*, about whom you are telling something; that when you add "bad" to "boy" you are letting the class *know more about him.* The two things to emphasize are these—(1) "the" tells that a particular boy is meant, and (2) "bad" lets one know more about him than just that he is "a boy." In the same way point out that in the second sentence "a" added to "girl" implies no particular girl, and that "good" and "little" let one know more about "girl" than that "a girl fell." Rehearse what you have said a few times to impress the precise function of the adjective, and add a few more sentences containing apt examples, which individual pupils should be asked to explain. After they have grasped the idea of an adjective being *an added word*, explain that you will now give them a name for all such words as are added to nouns. Tell them that instead of calling them *added words* they are called *Adjectives.* Write *Adjective* on the board, and let the term be committed to memory at once, after the usual method. Follow this up by writing a definition embodying what you have discovered concerning it. It might run thus:—*An adjective is added to a noun, and lets you know something about it.* Although this statement is ambiguous, it should be accepted as intelligently conveying to the mind the function of the adjective. By-and-by, when the pupils parse for parts of speech, you may explain that *letting you know something more or less about a person or a thing*, as implied in what are called adjectives, is *limiting* a noun, and that therefore *an adjective is a word limiting a noun.* It is hardly judicious to refer to an adjective as a *qualifying* word, unless "qualifying" has been explained to imply the contents of the above definition, because pupils will not make intelligent progress on the strength of such a statement. The child must understand clearly the ground he treads as he proceeds. Drill in the application of the definition to the detection of adjectives in the reading lesson will soon create wholesome familiarity with it.

The Adjective defined.

To point out that adjectives occur most frequently before nouns will be of considerable help to backward children, while in every case a sound acquaintance with the function of the adjective will lead to expectancy. Special sentences should also be written on the board to test as well as increase the pupils' knowledge of antecedent parts of speech.

The Terms "Parsing" and "Analysing."

It will be well to explain at this point that "nouns," "verbs," "adjectives," and such like terms, are called "parts of speech," because they have to do with the words we utter; and further that naming the parts of speech is called "parsing," while finding the subject, predicate, and object in a sentence is called "analysing." Write these words on the board, and after "parsing" put "noun," "verb," etc., while "analysing" will be followed by "subject" and "predicate." This will impress the significance of the terms through observation as well as intelligence.

An example will best illustrate the method of testing the pupils' knowledge. Write the sentence, "The cruel robbers killed the two pretty babes," horizontally on the board. Proceed with the analysis first, and write the terms as you detect them. What is the predicate here? "Killed." What question is asked to find the subject? *What killed?* Name the subject. "Robbers,"—and so on. Then take up the parsing or naming of the parts of speech, getting from the children that "robbers" and "babes" are nouns, "killed" a verb, and "the cruel" and "the two pretty" adjectives, firstly, because they are added to the nouns, and secondly, because they let one know something about the nouns. After the sentence has been analysed and parsed, it should present this appearance on the board:—

ANALYSING.		Subject.	Predicate.		Object.
	The cruel	*robbers*	*killed*	*the two pretty*	*babes.*
PARSING.	Adjectives.	Noun.	Verb.	Adjectives.	Noun.

The Adjective in Analysis.

By means of the above sentence the nature or rather the name of the adjective in analysis might be conveniently explained. It would be simple enough, as the sentence appears, to refer to the absence of any analytical term for "the cruel" and "the two pretty," and to say that all adjectives are called *attributes* or *enlargements* in analysing; but it will be preferable, while it is possible, to work up to such terms as these. Explain that when a person is speaking about a thing, or telling something about a subject, he is popularly said to be *enlarging* upon it, and that as the adjectives "the cruel" and "the two pretty" let one know something about the nouns, they may be called *enlargements.* Here "robbers" is enlarged by "the cruel," and "children" by "the two pretty." Upon this call attention to the fact that as nouns have enlargements, *the subject and object in a sentence may be enlarged.* An ocular demonstration will help to fix the term "enlargement" upon the mind after the real function of the adjective has been carefully expounded. In the first place draw circumscribing lines round "robbers" and "children," then impress the idea of enlarging the subject and object by drawing larger lines sufficient to include the attributes as well as the nouns. Thus in a double and more emphatic sense will the precise idea be conveyed to the mind. The sentence thus treated will now have this appearance:—

ANALYSING.	Enlargements of Subject.	Subject.	Predicate.	Enlargements of Object.	Object.
	The cruel	*robbers*	*killed*	*the two pretty*	*babes.*
PARSING.	Adjectives.	Noun.	Verb.	Adjectives.	Noun.

The above discipline will satisfy the class that while parsing deals with individual words, analysis treats of them in groups as a rule. They will also begin to realize that while the nomenclature varies, the functions of the words are fixed. Hence what are called "adjectives" in parsing are called "enlargements" in analysis. Constant questioning will familiarize the children with the correct functions of the words as well as their accepted terminology.

Pronominal and Predicative Adjectives.

In a little, pronominal adjectives, which are not quite so easily understood, may be introduced. Predicative ones, which most beginners are slow to recognize, may be passed over till the function of the adjective, in its simplest and most unmistakable position, has grown and matured in the pupil's mind.

You will find little trouble, after what has been said, in convincing the class that just as "the," which occurs so frequently, is a pointing-out adjective, because it has to do with something *definite*, as it is called; so "a" and "an," from the fact that they do not refer to any particular thing, are spoken of as *indefinite* words or articles. Because a knowledge of the function of the word is of infinitely more value than ability to call it by a particular term, the name is really of minor importance. On this account children may reasonably be allowed to call "the" either *a pointing-out word* or a *definite* article, and "a" and "an" *adjectives* or *indefinite articles.*

The Articles.

The ordinary use of "a" and "an" will necessitate some knowledge of the alphabet in its two divisions of vowels and consonants. Let the vowels only be committed to memory, then tell the class that all the remaining letters are consonants.

Vowels and Consonants.

For a time, at least, it will be best to speak of *naming the parts of speech* in a sentence, and not of parsing it, although "parsing" may be written for brevity after the term is understood. "Naming" the parts of speech is much more applicable to the form of exercise to which the pupils are as yet accustomed.

THE PRONOUN EXPLAINED.

The pronoun is perhaps the most troublesome of all the parts of speech to teach, chiefly because its phases are numerous and its usages occasionally peculiar. The pupils will get some idea of its function in the sentence if you explain it by means of the blackboard. Write the sentence, "John Smith saw James at the well, and John Smith told James that James would fall into the well." Pick out John Smith from the class, and prove that the boy before them would not speak like that if he came to tell what he had seen and done. Read the sentence aloud to impress its absurdity, and after explaining that one would know quite well what John Smith meant by these words, write immediately below them the sentence as it is generally spoken. The two sentences will appear thus:—

John Smith	saw *James* at the *well*, and	*John Smith*	told	*James*
I	saw *James* at the *well*, and	*I*	told	*him*

that	*James*	would fall into the	*well.*
that	*he*	would fall into	*it.*

Then proceed: "Both sentences really let us know the same thing, but the second one is written as we speak. John Smith, you see, speaking of himself, says 'I,' and instead of saying 'James' every time, he only says it once, and then puts 'him' and 'he' for James. [Point to this.] Again, instead of saying 'well' twice, he does it once, and puts 'it' when it occurs again. But 'John Smith,' 'James,' and 'well,' are nouns; so you see when we speak we often use words *in place* or *instead of* nouns. [Point again to the fact.] These words save us the trouble of saying the noun too often. I am now going to give you a name for words such as these. They are called *Pronouns.*" Write the word plainly. Explain their function once more, and let the class remember the term. It will be very satisfying and helpful if you point out that the "pro" part means *instead of.* So "pronoun" means *for or instead of a noun.* Now that the function has been explained, the definition might be written and committed to memory for future guidance. It might run thus:—*A pronoun is a word used for a noun, and it saves repetition of the noun.* Such a description, if explained a few times, should be quite intelligible.

The Pronoun defined.

It will be an interesting supplement to the foregoing lesson to sift out, with the aid of the class, a pretty exhaustive list of the personal pronouns. Pointed sentences, first written in noun form, then in pronominal, will simplify the process of identification. The double sets of sentences should appear thus:—

(*a*)	*Jane* fell and	*Jane*	hurt	*Jane's*	*nose* and	*the nose*	bled.
One would say	*Jane* fell and	*she*	hurt	*her*	*nose* and	*it*	bled.

(*b*)	*John* said that	*John*	saw *the dogs* when	*the dogs*	were running.
One would say	*John* said that	*he*	saw *the dogs* when	*they*	were running.

After writing the sentences as above, making vertical lines, and underlining the nouns and pronouns, call attention to the fact that the noun is only mentioned once, the pronoun taking its place afterwards. The children will thus see that "she," "her," and "it," in the first, and "he" and "they," in the second sentence are pronominal words. At this stage they will also be able to gather some idea of the pronouns classified as personal and demonstrative. **Peculiarity of "I" and "You."** In dealing with the former class, you must keep in mind that while it is the case that the so-called personal pronouns "I" and "you" do not stand for nouns in the name form, because "I" names the official relation of the speaker, and "you" the person spoken to—not his name—they have become so deeply rooted in the popular mind as pronouns, that it is almost impossible to speak of them as anything other than personal pronouns, especially at this time. You may therefore call "I" a personal pronoun, but refrain from explanations just yet. By-and-by the real character of "I" and "you," in their various cases, will be expounded. **Personal and Demonstrative.** Again let "he," "she," "it," and "they" be committed to memory as demonstrative pronouns. If it be desired, the explanation of the term will be easy enough. Write the words *Personal* and *Demonstrative* side by side, and underneath each a few examples to be learned by heart.

The Relative Pronoun.

If the scholars have shown special aptitude in digesting the foregoing instruction, you will have little difficulty in giving them some idea of the relative pronoun. The more they can apprehend at present, the easier subsequent lessons will become. Write on the board, "This is the boy; and the boy came." Appeal to the ordinary way of talking; and after showing that the sentence in this form is incorrect, write it properly below, substituting "who" for "and the boy," and putting a line round it to show for what words "who" is an equivalent. The pronominal aspect of "who" will be obvious; its relative nature has to be explained. This is not quite so easy, and if the pupils fail to grasp the idea that "who" refers to or relates to the noun "boy" going before, you will have to content yourself with merely giving them the term "relative" to remember, and trust to the development of their knowledge of the parts of speech to make the idea quite intelligible. Under *Relative* write also "which" and "that." "That" is troublesome, because it occurs in English as three distinct parts of speech. At this stage you can hardly hope to train children to recognize it as a relative pronoun with unerring exactness. It is only as their knowledge of its usage and of grammar in general extends that they will gain confidence and accuracy in identifying it through its function in the sentence.

The Term "Relative" is bad.

Although the term "relative" is a bad one, on the ground of its insufficiency, it can hardly be dispensed with and a better one substituted because of its established position in grammatical nomenclature; but a definition and explanation of the exact character and function of "who," etc., should be fixed upon, which shall deviate as little as possible from the use implied in the term itself. Even with all your most studied and careful explanations you will often find a section of the children unable to identify pronouns, and indeed many of the parts of speech, from the fact that in English the same word form may assume a perplexing variety of grammatical phases, each deriving its name from the functional position of the word in the sentence.

It is a good plan to write a list of relative pronouns, and then to set the pupils to write and commit them to memory. As a testing lesson they may be exercised in naming pronouns occurring in the portion prescribed for reading. When a pronoun is detected, the noun for which it is a substitute should, if possible, be invariably named. This is especially desirable when personal and demonstrative pronouns occur.

The Pronoun in Analysis.

Armed with the above knowledge, the pupils might now be introduced to the analysis of a sentence in which pronouns appear. The sentence might be written in its noun form first, and below in its correct pronominal form thus:—

(What is said about John Smith)	*John Smith*	tore	*Jane's*	new dress.
(What John Smith would say)	*I*	tore	*her*	new dress.

Explain that the first sentence is what some one might tell of John Smith, and that in the second John Smith himself speaks. Call attention to the changes which the phraseology has undergone in the matter of pronouns. Point out that as "tore" is the predicate and "John Smith" the subject in the first sentence, "I" substituted for "John Smith" becomes the subject of the second sentence. In like manner "her," substituted for "Jane's," which is the enlargement of "dress," the object, becomes an enlargement also. But it is a pronoun, and as it is here used as an adjective, explain that it is called a *pronominal adjective.* Write the name to get it remembered. Review the various parts of the sentence in its pronominal form; and that it may be clearly understood, rewrite it in such a way that both the parsing and analysing terms may be quite intelligible:—

ANALYSING.	Subject.	Predicate.	Enlargements of Object.		Object.
	I	*tore*	*her*	*new*	*dress.*
PARSING.	Pers. Pronoun.	Verb trans.	Pron. Adj.	Adjective.	Noun.

After the pupils have assisted you to fix these terms, question them in order to make sure that the subject is well understood. Similarly deal with sentences in which pronouns are used as objects, and introduce a number of different pronominal adjectives used as enlargements of both subjects and objects. The list of such adjectives is so small that it will not be difficult to exhaust it.

THE ADVERB EXPLAINED.

This is the most convenient and natural point at which to introduce the adverb. Write the sentence, "The little boy sings the song sweetly," and elicit from the class the analysis of it as far as they are capable. Follow this up by making them name the parts of speech. Then proceed: "You have told me correctly what each of the words is except 'sweetly.' You cannot tell what it is either in analysing or parsing. We shall soon find out. Let us, in the first place, find what word in the sentence it *goes* with or *has to do* with. Read the sentence, leaving out the verb 'sings.' [One will do this aloud.] It makes nonsense without 'sings.' Now read it, leaving out 'the song.'

It is good enough sense without 'the song.' So we find that 'sweetly' has to do with 'sings,' for it is of use when 'sings' is put in, and it tells *how the boy sings.* 'Sweetly' is therefore a word *added to* 'sings' to let you know *how* he sings. It is called by a name which means 'added to.' But you remember that an 'adjective' was a word added to a noun. In this case the word is added to the verb, and it is called an *Adverb.*" Write the word, and let it be committed to memory. At the same time dwell upon the fact that the adjective goes with the noun and is generally before it, while the adverb goes with the verb and is frequently after it. The sentence should have this appearance on the board :—

ANALYSING.	Enlargements of Subject.	Subject.	Predicate.	Enlargement of Object.	Object.	——
	The little	*boy*	*sings*	*the*	*song*	*sweetly.*
PARSING.	Adjectives added to "boy."	Noun.	Verb.	Adjective added to "song."	Noun.	Adverb added to "sings," telling *how*

Pursue the subject by writing this sentence next, "The very bad baby screams dreadfully." The analysis having been successfully overtaken, and the parts of speech named—"dreadfully" being recognized as an adverb added to "screams," and telling "how"—a difficulty will arise in connection with "very," which will now be ripe for identification. By adopting the method of elimination bring out that although "very" looks like an adjective added to "baby," such is not the case, for it does not let one know anything more about "baby." "Very baby screams" would be nonsense, hence "very" is not an adjective. Read the sentence again, and conclude that "very" has to do with "bad," for it tells "how much bad" the baby is. From this establish the fact that "very" is an adverb, going with the adjective "bad," and telling "how much." Point out also that it appears *before* the adjective "bad." While the two sentences are fresh on the board summarize what you have found—namely, that an adverb is an added word; that it is added to a verb or an adjective; and that it tells *how*

Summary.

or *how much.* After impressing these facts, write this sentence, "He writes exceedingly well." First let the pupils name the parts of speech, and when "exceedingly" is considered, prove by reading the sentence with "well" omitted that it is an adverb of manner added to "well." The fact that "exceedingly" is valueless without "well" establishes the necessity of joining it to "well," and not to any other word in the group. "He writes well" is sense, but "He writes exceedingly" is hardly sense. Hence it is the presence of "well" that gives "exceedingly" its special functional character. "Well" will be readily recognized as an adverb going with "writes," and telling *how* or the *manner* in which he writes; and as "exceedingly" is added to "well," it is an adverb also, added to "well," and telling *how.* You may now point out that an adverb may be joined to another adverb. The summarized statement will take this form—(1) the adverb is added to verbs, adjectives, and adverbs; (2) it is generally placed after the verb and before the adjective and adverb; (3) it tells *how, how much,* or *the manner.*

Adverb tells "Manner."

Write a few more sentences involving adverbs of manner, and while the scholars detect them by a scrutiny of the precise function of each, let them state the words to which they are joined. Practice in filling up elliptical sentences will also be exceedingly useful and interesting. At this stage it will perhaps be best to speak of the adverb as being *added* to or *joined* to the other part of speech, because such phraseology appeals more intelligibly to the juvenile mind.

"Time."

Here it will be natural to pursue the study of the adverb in its variety of influences upon the words to which it is joined. The different classes of adverbs will thus be brought out. This can only be satisfactorily done through the sentence. Write, "The man came to-day." Get from the class that "to-day" is an adverb, going with "came." Had the sentence merely been, "The man came," one could not have told when he did so, whether it was a minute or a year ago; but when "to-day" is added to "came" the time is specified. Hence explain that "to-day" is called an adverb of *time*, and it is added to "came." Underline "to-day," and over it write *Time.* Familiarize the pupils with this class by writing such sentences as "I see him often," "He speaks daily," etc., in which adverbs of time are conspicuous. Then wipe off all the sentences except the first, which should be retained as illustrating this particular kind of adverb.

"Place."

"Degree."

Next put on the board, "She sits here," and after getting "here" suggested as an adverb joined to "sits," and telling where she sits, call attention to the fact that by its function it tells the "place," and hence is called an adverb of *place.* Underline it, and write *Place* over it. After impressing this class by means of a few more examples, which can then be removed, take up another kind of adverb. Write, "The girl talks very loudly." Adverbs of manner have already been explained, so that the pupils should have no hesitation in naming "loudly" as an adverb of manner, telling *how,* and going with the verb "talks." "Very" they also recognize as an adverb joined to "loudly." Make it clear that "very" tells how much loudly, and that as "degree" means "how much," "very" may be spoken of as an adverb of *degree* going with "loudly," the adverb of manner. Similarly other classes might be dealt with. Sentences illustrative of the classification might appear as follows :—

Manner.
(1) The boy writes *well.* ———— *Manner.*
Adv.

Time.
(2) The man came *to-day.* ——— *Time.*
Adv.

Place.
(3) She sits *here.* ———————— *Place.*
Adv.

Degree.
(4) The girl talks *very* loudly. ——— *Degree.*
Adv.

Drill the scholars in making similar short sentences, and let each one name the adverb in his own statement, telling at the same time its kind, and the word to which it is added.

Now is the time to point out that the adverb is not only an added word going with one of three parts of speech, but that its special function is to change the meaning implied in the word to which it is joined. This has been practically explained already. You will do well, however, to repeat the exposition for a purpose. Then point out that a word which changes or alters the meaning or force of a word in any way may be said to *modify* it, modify being accepted in the sense of *alter*. Adverbs are therefore spoken of as modifying words. This leads up to an intelligible, succinct definition, which may be written to be committed to memory as clinching all antecedent expositions:—*An adverb is added to a verb, adjective, or adverb to modify the meaning.* A supplementary statement, which you will also write, after rehearsing and collating the facts already discoursed upon, might be:—*Adverbs tell the time, place, manner, and degree.*

The Adverb defined.

As a profitable exercise you might ask the pupils to write lists of six or more adverbs of each kind, the words being selected from the reading lesson; or they may be set to make short sentences containing adverbs of the kind you specify. Both forms of exercise are good.

Exercises.

It will be of much assistance to backward children if you point out that adverbs very often end in "ly," and that when a word ending in "ly" occurs, they may consider whether or not it is adverbial in its nature.

Adverbs end in "ly."

A list of adverbs, which, from their peculiar appearance, are difficult to identify in the light of their function in the sentence, may be written and committed to memory to save further trouble, after an effort has been made to expound them.

The comparison of the adverb is similar to that of the adjective, which will be referred to at a later stage.

As it is really the single-word adverb in its most obvious form which you wish to impress at this stage, you need not hasten to introduce adverbial phrases, such as, "at home" and "on the road," till much familiarity with the former is secured. By-and-by, after explaining the meaning of "a phrase," and making certain that ordinary adverbs are well understood, you may call attention to the function and names of such groups of words.

Adverbial Phrases.

The adverb in analysis next falls to be considered. Write the sentence, "This very happy boy sings a pretty song sweetly."

The Adverb in Analysis.

Adverbs are Adjuncts of the Predicate.

The scholars will analyse it. When the adverb "very" is reached they will tell you that it goes with "happy," which it modifies, telling "how much happy." Then proceed —"'Very' is therefore really a part of 'happy.' I shall put a line round 'very happy' to show this. Here, then, you have an adverb, 'very,' modifying an adjective, 'happy,' which is an enlargement of the subject. In such a case 'very happy' is taken as one of the enlargements of 'boy.' Now look at 'sweetly.' You say it is an adverb modifying 'sings,' with which it goes. But 'sings' is the predicate. I have now to tell you that in analysing, the adverbs which modify the predicate are called *adverbial adjuncts of the predicate.* 'Adjunct' means 'added to,' so you see it is a good word, for it tells exactly that the adverb is added to or goes with the verb." Explain that adverbial adjuncts are also sometimes called "extensions" of the predicate. Write both terms, but point out that as *adverbial adjunct* is the better of the two it will be used in future. The pupils should write and commit the name to memory. The above sentence will appear somewhat as follows:—

ANALYSING.	Enlargements of Subject.	Subject.	Predicate.	Enlargements of Object.	Object.	Adv. Adjunct of Pred.
	This very happy	*boy*	*sings*	*a pretty*	*song*	*sweetly.*
PARSING.	Adj. Adv. Adj. degree, mod. "happy."	Noun.	Verb Trans.	Indef. Adj. Art.	Noun.	Adv manner, mod. "sings."

This arrangement is specially adapted to short simple sentences. It gives the double nomenclature in the plainest manner possible, and enables the pupils to grasp the precise distinction between parsing and analysing. The two processes may be done separately or conjointly. Both disciplines are valuable. The pupils should be accustomed to parse and analyse short sentences on slates in the same manner. The exercise, while profitable, is interesting, and it has the additional merit of being clear and capable of revision almost at a running glance.

THE PREPOSITION EXPLAINED.

The same word is so frequently used both as an adverb and a preposition, that to save confusion it is almost obligatory to take up the preposition immediately after the adverb. Its nature and function can be sufficiently expounded by means of this sentence, which you will write on the board, "The copy lies below the desk." The pupils will readily name the parts of speech with which they are familiar; but when "below" is put before them they will probably call it an adverb of place going with "lies;" or if you have successfully taught the adverbial phrase they will likely adopt analytical phraseology, and call "below the desk" an adverbial adjunct of the predicate, which of course it is. The elliptical test will best bring out the prepositional character of "below." Ask a pupil to read the sentence omitting "the desk." "The copy lies below" makes sense. In this case "below" is certainly an adverb modifying "lies." Rehearse the fact that in English one word goes with another, upon which it is often dependent; and here point out that "the" goes with "copy," and "copy" with "lies." The second "the" is joined to "desk;" but what has "desk" got to do with? Let some one read the sentence omitting "below." This makes nonsense. So it is plain that "lies" and "desk" cannot go together. To make sense "below" is put in. Show by reading the sentence that "below" has more to do with "desk"—"below the desk"—than with "lies"—"lies below." As "below" goes better with "desk" than with "lies," it does not appear to be an adverb. Point out that it is a word *put before* the noun "desk" to show its connection with "lies." It in fact joins "desk" to "lies." In analysing, the pupils called "below the desk," like "at home," an adverbial adjunct of "place." This is further proof that "below" goes naturally with "desk," which it is put before. Now write the word *Preposition*, and explain that it means "put before." It should be committed to memory. So "below" is a preposition, for it is put before "desk," which is a noun. Extend the use of this part of speech by writing the sentence, "The horse fell below the man," as, "The horse fell below him," where "him" is substituted for "the man," and point out that the preposition is placed before a pronoun as well as before a noun. At this point summarize the lesson, and besides impressing the term "preposition," emphasize the fact that it is *a word occurring before a noun or a pronoun.*

The Function of the Preposition.

From this proceed to point out that as other parts of speech occur before nouns and pronouns, it will be necessary to study closely the precise use of the preposition. Write, "The head of the man was bald," and select the preposition "of" for special consideration. The parsing of the other words will not be difficult. Find out what "of" goes with. "The head of" makes nonsense, so "of" can't go with "head." "Of the man" sounds more correct and natural. Ask one to read the sentence, omitting "of." "The head — the man was bald" sounds strange, and the class will feel that the presence of "of" is necessary to make the statement complete. From this explain that it is clear that "of" is *a joining word,* for it joins "head" to "man," and shows that the one belongs to the other. Here point out that one person is said to be *related* to another, as when it is said that James Smith is John Smith's father. In "the head of the man" it is the word "of" that tells what relation "the head" bears to "the man," or simply that the head belongs to the man. Gathering what you have said, reiterate the fact that "of" is a preposition placed before "man," and that it shows that "head" and "man" bear a certain relation to one another. Thus a preposition shows that the noun after it has something to do with a word—it may be a noun—going before. Thus far you have shown that *a preposition relates a noun to a noun.* Now write, "The boy fell on his face," to illustrate a case where it may show the relation between a verb and a noun. The pupils will set aside "on" as a preposition, but they will be uncertain about its function. Reading the sentence without "on" they will realize its absurdity; nor will it sound natural to read it as, "The boy on his face fell." This last will show that "on" does not join "face" to "boy" —a noun to a noun.

Extend your explanation to bring out that it is "fell" (a verb) and "face" (a noun) that have to do with one another. To impress the fact that "on" goes with "face," point out that in analysis "on his face" would be called an adverbial adjunct of "manner." Thus you will have proved that a preposition may show the relation between an antecedent verb and a noun. After carefully revising what has been said, you may then write the definition to be committed to memory, after each child has made a careful copy of it, and you have proved by question and answer that he understands its import and function. It might be thus defined:—*A preposition is put before a noun or a pronoun to show the relation of one word to another.* Plenty of practice in the selection of prepositions, and in showing what words they relate to one another, will soon make the scholars able to identify them in nearly all their simple single-word forms and connections.

The Preposition defined.

Most grammar text-books contain a replete list of prepositions, which are to be committed to memory—a rather formidable task. Although to train a child by well-directed instruction to detect a preposition through its precise function in the sentence will be of far more value than to trust to his remembering with some uncertainty that it occurred in a group on a particular page of his grammar, the stereotyped list is not to be despised. A knowledge of it implies a certain amount of thought, and an exercise of memory, which, while savouring of cramming, is nevertheless serviceable in its practical application. But a strenuous effort should be made to get the scholars to understand the *use* of the preposition before you set them to learn by heart a disjointed series of words and prepositional phrases.

List of Prepositions.

As showing the main difference between the preposition and the adverb, the following exercise will be particularly beneficial. Write these sentences in this order:—

Prepositions and Adverbs distinguished.

1. The boy fell *down.*
2. The boy fell *down the hill.*
3. The boy ran *off.*
4. The boy ran *off the road.*

Then with the aid of the class arrive at the conclusion that "down" in the first is an adverb modifying "fell," and telling the "place." Lay special stress upon the fact that there is no noun or pronoun after "down," which clearly points to its being an adverb. The presence of "hill" in the second will indicate the prepositional nature of "down," which obviously connects the noun "hill" with the verb "fell." In a similar manner "off" in the next two sentences should be explained. But the main distinguishing feature which should strike the pupil at the first glance ought to be the presence or absence of the noun. Although he knows the function of the word quite well, he has to be taught to apply this test in every instance. It of itself will determine pretty accurately the prepositional or adverbial nature of the word when the least symptom of dubiety is manifested.

It will also be necessary to explain that in analysis such a phrase as "down the hill" is called an *adverbial adjunct of the predicate* relating to "place;" and were the whole phrase to be parsed for parts of speech, it would just be set down as an adverbial phrase of "place," while "down" parsed by itself is a preposition before "hill," and joining "hill" to "fell."

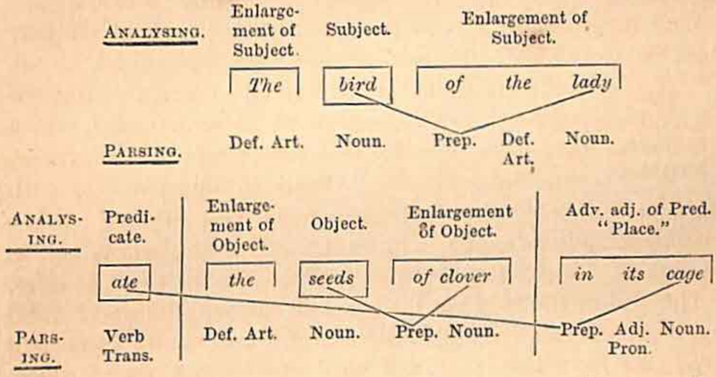
The Adverbial Adjunct distinct from the Prepositional Phrase (Adjectival).

But the adverbial adjunct of the predicate must not be mistaken for the prepositional phrase, which being adjectival in its usage, is an attribute of some substantive. After writing the sentence, "The bird on the wall was shot," let the pupils analyse it. If you ask them what "on the wall" is, they will probably answer, an adverbial adjunct of the predicate "was shot." Point out that the question is, What does "on the wall" go with? Does it go with "bird" or "was shot"? Is it "the bird on the wall" or "on the wall was shot"? Putting it this way will emphasize the fact that the former is correct. You will thus be able to show that "on the wall" is not an adverbial adjunct of "was shot." This being settled, point out that it is a phrase, having the preposition "on" in it, which indicates the relation of "bird" to "wall," and not of "was shot" to "wall." Hence it is *a pre-*

positional phrase. By means of another example, "The walks of the garden are pretty," prove that "of the garden" goes with the noun "walks," and is also a prepositional phrase. The adjectival nature of the group will be easily understood if you explain that "the walks of the garden" may be rendered "the garden walks," where the phrase has been converted into its adjective form "garden." In summarizing, point out that *the prepositional phrase joined to the verb is adverbial in its nature, while such a phrase going with a noun is adjectival.* In the former sentence the phrase might be shifted to illustrate both usages.

The Prepositional Phrase in Analysis.

The treatment of the prepositional phrase in analysis may now be considered. It has already been recognized as adverbial in its nature as well as adjectival. But the pupils know that adjectives go with nouns, which they limit, and also that adjectives are synonymous with enlargements. Further, adjectives go with the subjects or objects of sentences; hence prepositional phrases may reasonably be expected to be attached to subjects as well as to objects. Write this sentence to illustrate the point at issue, "The bird of the lady ate the seeds of clover in its cage." All explanations regarding the relations of words should be elicited *viva voce* from the class, and only those terms noted which, while sufficient for identification, will not give the specimen a crowded or bewildering appearance. The analytical nomenclature is self-explanatory, and may be written almost in full. The undernoted markings, which show the proper grouping, should also be adopted. The following statements may be accepted by way of parsing:—"The," the definite article or demonstrative adjective, limiting or pointing to "bird." "Bird," a noun. "Of," a preposition placed before "lady," and showing the relation of "the bird" to "the lady." "The" (as before), limiting "lady." "Lady," a noun. "Ate," a verb transitive, its subject being "bird," and its object "seeds;" and so on. Treated analytically the sentence might be divided into four principal parts by vertical lines; then the groups or phrases should be marked off. "Of the lady" should be recognized as a prepositional phrase of adjectival force added to "bird," which it enlarges; while "of clover" is, for a similar reason, an enlargement of "seeds." "In its cage" goes with "ate," not with "clover," and hence it is adverbial in its nature, and refers to "place." Before leaving off point out that "the seeds of clover" might be written "the clover seeds," where "clover" would clearly be an adjective added to "seeds." This will easily convince the pupils that a noun may sometimes take the place of an adjective. The sentence thus dealt with will appear as follows:—



Drill on parsing and analysing similar sentences written on the board will be necessary before the pupils are set to tackle specimens selected from the reading lesson. As the sentences become longer and more involved, you will find that the horizontal arrangement is not always sufficient, and that by-and-by a vertical form will have to be adopted; but of this again. Referring to the exemplifications on the board, you will impress these facts:—1. A word may be a preposition or an adverb, according to its function in the sentence. 2. A word which is generally a noun may be used as an adjective. 3. A prepositional phrase (adverbial) modifies the verb with which it goes. 4. A prepositional phrase (adjectival) limits the noun to which it is added.

Points to Emphasize.

In a little such expressions as "according to," and "in consideration of," will have to be classified as prepositional phrases, having in themselves the force of prepositions. They will be readily understood, provided the nature and usage of the simple one-word preposition has been thoroughly comprehended.

Phrases.

THE CONJUNCTION EXPLAINED.

The character and function of the conjunction should next be demonstrated through the medium of the sentence. It will be agreeable to the pupils to tell them that this may be called the last of the parts of speech. Write, "The toy broke — the child cried," leaving a space for the word omitted. Call attention to the fact that these two statements, which the pupils will be convinced are sentences, do not appear as they are spoken. Some one will readily suggest "and" as the word left out. Write it, and draw a line round it. Then emphasize the idea of its being a joining word, necessary to complete the whole statement. Again, write below the last the sentence, "You can stare — I don't care." "But" will be offered as the missing link, while some will possibly suggest "still" and "only" as words which may aptly fill the gap and make the sentence natural. At present you may designate a sentence any arrangement of words which contains a distinct subject and predicate. "I saw — he fell," will at once suggest the omission of such joining words as "that" and "where." When the pupils have got a clear notion of the *joining* force of such words by means of the above examples, tell them that the name given to each of them is a *conjunction.* Write the word, and explain by reference to a railway junction or the union of two streams, that the term conjunction is quite appropriate when applied to such words as have a connective function to perform.

After this it will not be difficult to show that conjunctions join nouns or pronouns as well as sentences together. Such sentences as "John and James came to-day," "He killed hares and rabbits," will illustrate this. The following definition should then be written, copied, and committed to memory :—*A conjunction joins words or sentences together.*

The Conjunction defined.

As a valuable exercise on this part of speech, a number of sentences having the conjunctions omitted might be written on the board. The elided words the pupils should supply till the precise function of the conjunction becomes firmly rooted in the mind. To show that the union may be effected by a conjunctive phrase, write a sentence in which the nouns are connected by "as well as."

Lists.

Again, a list of conjunctions might be given, and the pupils asked to construct sentences which will illustrate the use of each. This is preferable to committing the list to memory.

Joining Words.

Although "which," "whose," "what," and such like words, are practically connecting ones, it will be injudicious to refer to them as such at this stage. Let your pupils call them by the terms they have already learned, and reserve scientific generalizations for minds of stronger intellectual capacity.

But it will be possible, and in a measure desirable, to augment still further the pupils' knowledge of the conjunction; and now it will be well to explain the nature of the "conjunctive adverb," which will be of frequent occurrence and somewhat perplexing.

The Conjunctive Adverb.

Write, "We saw — he was killed." The class will supply the missing word "where." Below it write, "I asked — he would be ready," and "when" will be suggested as satisfying the sense. It will strike the scholars that "where" and "when" are conjunctions. But they have hitherto been accustomed to consider them adverbs of "place" and "time" respectively. You may now indicate the double function of each, making clear that as they partake of the nature both of conjunctions and adverbs they may reasonably be called *conjunctive adverbs.* Supply other examples and similar interpretations. Sentences containing simple adverbs, conjunctions, and conjunctive adverbs, may be selected from the reading book, and the pupils exercised in detecting and explaining them in their various situations and connections. When they show aptitude at this task, although it is not by any means imperative just yet, as the topic is so nearly exhausted, and as the pupils will be found to experience no particular difficulty in dealing with this part of speech, a simple classification will not be difficult to comprehend and remember.

(a) The Co-ordinative Conjunction.

After writing such a sentence as, "The way was long, and the snow was deep," call attention to the fact that the two statements—namely, "The way was long," and "the snow was deep"—have no connection, or have nothing to do with one another so far as the meaning is concerned. The way might be long although the snow was not deep, and the snow might be deep although the way was not long. Put the word "independent" on the board, and explain that a person is said to be independent when he has everything of his own, within himself as it were, and has no need of help from another. From this, show that as these two sentences express distinct ideas, they may be called independent sentences. Then make known that a word joining independent sentences is called a *co-ordinative conjunction.* Write these words, which should be committed to memory, and impressed by means of a few pointed sentences connected by "and," "but," "either," etc. When the subordinative class is explained, the nature of the co-ordinative will be particularly emphasized.

(b) The Subordinative Conjunction.

In the sentence, "I will come, if you will wait for me," "if" will be easily recognized as a conjunction. Show that here the one complete statement is "I will come," while the other is, "you will wait for me;" but that the coming entirely depends upon the waiting. The one thing is not to happen without the other; so the two are, as it were, bound together. The one is in fact dependent upon the other in this case. Again write, "I am happy because I am warm," and satisfy the class that as the happiness is dependent upon the being warm, the one sentence is also dependent upon the other. Then tell them that when the conjunction connects two *dependent sentences* it is called a *subordinative conjunction.* A variety of sentences will illustrate conjunctions of this class, of which "if" and "because," as in the above sentences, are examples. The conjunction may now be considered taught for all practical purposes.

THE INTERJECTION EXPLAINED.

Although the interjection can hardly be called a part of speech, it must not be overlooked. It occurs so rarely, and is in itself and usage so peculiar, that a brief allusion to it will be sufficient to establish its grammatical character. It is easily recognized. Liberty is taken to quote what Dr. Fitch has so aptly said of it in his "Lectures on Teaching," p. 264. "The interjection is in fact not a part of speech at all, but as Horne Tooke called it, 'the miserable refuge of the speechless.' It is the one form of human utterance which obeys no law, and is closest akin to the screams of a bird, or to the growling of a dog; and we never use it unless for a moment we part with the privilege of humanity, descend to the level of the lower animals, and cease to use organized language altogether."

Foregoing Instruction summarized.

The eight parts of speech have thus been touched upon. The adverb, preposition, and conjunction, have been pretty fully dealt with. The pupils are able to analyse an ordinary simple sentence, and to tell the parts of speech of which it is composed. A fuller acquaintance with the noun, pronoun, adjective, and verb will now be desirable. Hitherto the word "sentence" has been invariably employed where "clause" would have been more appropriate; but as the pupils are merely becoming familiar with English in sentence form there is no special reason why "sentence," which has been used from the first, should not have been occasionally spoken of where "clause" will in future be more correctly adopted.

PART II.

THE GRAMMAR TEXT-BOOK.

In the earlier stages a grammar text-book is of very little value to the pupil. It is only after it can be interpreted by him that he will derive benefit from its perusal. It will be best, therefore, to introduce him to grammar without putting into his hands a repulsive compendium of aridities. By-and-by

Its Function.

he will take kindly to the book, which will help to lighten your teaching, though it will never dispense with it. The study of the grammar text-book must never be allowed to create anything like abhorrence in the pupil's mind. Its purpose will be best served where the teacher makes its contents to some extent equivalent yet supplementary to his own instruction. Its aid is analogous to that given to the weak man by the staff upon which he leans. Much of its real value will lie in its supplying good, serviceable, and intelligible definitions, couched, if possible, in the same language as those already arrived at; succinct and sufficient classifications which readily catch the eye; plain but full paradigms of verbs; lists of parts of speech to which independent reference may be made at any time, and copious exercises illustrative of the topic under consideration. The language should be clear and simple, and specially adapted to the intellectual capacity of children.

Selection occasionally necessary.

Should circumstances necessitate your putting full and comprehensive grammars into the pupils' hands, you must exercise the greatest discretion in selecting portions suitable for study. A grammar may be so full of details that it will occupy the child's whole attention to master its contents. It is in any case injudicious, as well as unnecessary, to ask him to get up everything as it occurs at the first perusal of the book. The manual may be constructed to suit every grade; so keeping this in view, you cannot expect the pupil to get up or even to grapple with matter which it would be to the credit of more advanced scholars to comprehend.

But for all this, very satisfactory results are possible of attainment without any text-book at all. The book has the great advantage of saving time when it is judiciously used. Lucidity can most effectively be supplied by the teacher who, if thoroughly conversant with the elements himself, can impart a much more agreeable and intelligent grasp of the subject than any manual can supply. The schoolroom rather than the home is the proper place for linguistic study, which, to be pleasant and successful, necessitates the guidance and superintendence of an intelligent, well-informed, and sympathetic mind.

THE CLASSIFICATION OF NOUNS.

The classification of nouns may next be taken up. After what they have been taught, the pupils may be credited with ability to detect the nouns occurring in any ordinary sentence. The idea implied in "classification" should be explained. Take a number of coins or objects of different kinds, and convey to the pupils the significance of the term by arranging them in separate heaps, each of which you may designate a class. Then explain that there are different kinds of nouns, and that they can be arranged under certain heads or classes; hence they are said to be classified. The following arrangement will be serviceable:—

NOUNS.
- 1. *Proper*
  - (1) *Persons*...John, Mary.
  - (2) *Places*.....London, Stirling.
- 2. *Common*.......boy, cow, book.
  and *Abstract*...justice, whiteness.
- 3. *Collective*......army, flock.

Then after writing it on the board and pointing to the items as you proceed, show that names of persons and places, or such words as are *always* spelt with a capital letter, are called *proper nouns*. The second class contains *common nouns*, such as "boy," "cow," "book," which are names of ordinary objects. To these might be added *abstract nouns*, or such as are derived from adjectives. "Justice" is derived from "just," and "whiteness" from "white." The third and last class is made up of *collective nouns*, which, as the name implies, refer to objects taken together or collected in groups. Revise the classification a few times, giving pointed explanations as you proceed. Bid the scholars repeat the classification simultaneously, make copies of it, and finally commit it to memory. Then set them to specify the nouns you name, or as an alternative exercise let them classify the nouns occurring in the reading lesson for the day.

The Exercise.

THE GENDER OF NOUNS.

The gender of nouns is easily taught. Make the pupils consider the fact that they speak of a "boy" as "he," of a girl as "she," of a "horse" as "he," and of a "mare" as "she." Tell them that "boy" and "girl" are of different sexes, as well as "horse" and "mare." The noun "boy" is said to be of the *masculine gender* or kind, while "girl" is said to be of the *feminine gender*. From this, explain that when we can use "he" instead of a noun, it is understood to be masculine, and when we can use "she" for the noun, it is feminine. Again we may say that boys are males, and girls females. Draw out the following table, and note the facts while they are being arrived at from usages familiar to the class :—

Masculine and Feminine.

GENDER.
1. *Masculine* (HE) boy.
2. *Feminine* (SHE) girl.
} *Common* (HE or SHE) child.
3. *Neuter* (neither HE nor SHE) (IT) book.

Next impress the main idea—namely, that when one can put "he" for a noun, it is masculine, and when "she," it is feminine.

Neuter.

Then write the sentence, "This is the book, but it is torn," and call attention to the substitution of the pronoun "it" for the noun "book." Point out that as neither "he" nor "she" is ever said of "*book*," it is neither masculine nor feminine; that when "*it*" can be put for the noun, it is said to be "neuter," a word which means "neither," and is here employed because the noun is neither masculine nor feminine. Let them keep in mind, then, that when the noun is spoken of as "it," it is of the *neuter gender*. Point out that this usage applies to all nouns that have no life. By your tabulating the facts and revising them a few times, the pupils will become familiar with the terms and their import, and will be able to give numerous examples illustrative of each gender.

Common.

You may now refer to such a word as "child," which will be somewhat perplexing at first. It will be intelligible to the class if you explain that "child" may be either masculine or feminine, because either "he" or "she" may be substituted for the noun. Other examples are, "beast," "pig," and "friend." Tell them that in parsing one may say of each of these that it is of either gender; but for convenience the word "common" is used to mean that the noun is either masculine or feminine: hence "child" is spoken of as being of the *common gender*. At the recapitulation exercise impress these simple ideas by pointed allusion to the table just completed. Later it will be well to explain that the actual objects themselves are either of the male or female sex. Your instruction should next be followed by a practical and supplementary exercise. Write alongside of the table a long list of nouns, and ask the pupils by turns to name and explain the gender of each. The correct gender thus arrived at, you will note by putting M. F. C. or N., as the case may be, after the noun. The classification should finally be carefully copied, and the books kept handy for reference or rehearsal at any time. It may easily be committed to memory, and practically applied in distinguishing the genders of nouns occurring in the reading lesson.

The Exercise.

Thus far you have laid an apparently solid foundation in gender; but you must keep in mind that in thus treating the subject you are but instructing your pupils in what has become conventional and popular in the matter of grammar. At a later stage it will be undesirable to overlook the fact that there is really no such thing as gender popularly so called. This is worthy of consideration. Were one to lay little stress upon the idea of gender in its ordinary acceptation, it would be difficult to condemn a step which at first sight may appear to be somewhat extreme.

Gender is Conventional.

With regard to the genders of such nouns as "sun" and "moon," it must not be forgotten that the same principles which fostered the genders of these in classical times may have exerted their influence in English to produce the same natural results.

Gender of "Sun," "Moon," etc.

THE NUMBER OF NOUNS.

It will in the next place be proper to treat of the "number" of nouns. Referring to the pupils' own way of speaking, you can easily get them to understand that when such a word as "boy" is uttered, one is meant, and that "boys" is used when more than one is referred to. Write the two words on the board, and call attention to the addition of the letter *s* to "boy" when more than one is spoken of. Let them understand that these changes have to do with "numbers;" that one is sometimes spoken of as being "single," and that "singular" is pretty much the same as "single." Then say that when one or a single one is mentioned it is said to be in the *singular number*. The number of "boy" is singular, for only one is referred to. When more than one—as "boys"—is spoken of, the noun is said to be in the *plural number*. The tabulated facts which you have explained will now appear as annexed. Reiterate the fact that when the noun applies to one object it is singular, and that when it includes more than one it is plural.

NUMBER.	1. *Singular*............. (1 only.)	boy
	2. *Plural*............... (2 or more.)	boys

Exercise in the Formation of Plurals.

This leads up to a consideration of the various forms in which the plurals end. These may be handled on known ground. Write on the board a long perpendicular list of singular nouns, which should contain such words as "man," "fox," "dish," "potato," "ox," and "lady;" and elicit from the pupils themselves the correct plural forms which they use every day.. You adopt the proper and natural method of teaching grammar by dealing with words quite familiar to the class, and to the peculiarities of which attention has merely to be called to insure an intelligent acquaintance with them. By making short elliptical sentences *viva voce*, and allowing the pupils to supply the plural forms omitted, which you should write opposite the singular forms, you will encouragingly convince them that the formation of plurals is quite a simple matter. They are accustomed to use them from their cradles, and hence the facility with which they ought to recognize them. For instance, point to "man," the first noun on the list, and say, "The ...... were at the church." The pupil on being challenged to supply the requisite noun, will at once suggest "men," which you will put in the plural column. Again pointing to "lady," say, "The ...... were pretty;" and some one will likely suggest "ladies" without any hesitation. After finding a plural, it will be useful and interesting to call attention to the modification which the singular form has undergone, and note in a sort of third and last column the letter or letters which have given the plural its characteristic spelling. The list having been exhausted, revise the row of endings or terminations, as well as the alterations in the spelling. It will then be easy to show that the common termination is *s*, which is added to the singular to make the plural; that nouns ending in *sh*, *ch*, *x*, or *z*—in fact, all those having a soft or sibilant sort of ending in the singular—take *es* in the plural. Again, others, such as "man," "foot," "tooth," will appear with their vowels modified, and no *s* added in the plural. The peculiarity of nouns ending in *y* should be dwelt upon. The bulk of exceptional cases should be illustrated on the board. An exercise such as the above removes everything of a deterring nature from the study. The pupils are interested, and take kindly to the lesson. They are effectively convinced that they are already by no means unacquainted with nouns in their two numbers. The fact that such words as "tongs," "shears," and "scissors" are plural will be readily accepted. The dual idea implied in each, and its distinctly plural appearance and sound, make the pupils at once think of it as plural. When grammars are used, the rules for the formation of plurals may be prescribed in suitable portions to be learned by heart—a task simple and enjoyable enough after the above explanations. Thus in a very short time may "number" be attractively and intelligently taught.

Points to keep in Mind.

In teaching, the following points should be kept in mind:— 1. The scholars are familiar with the majority of plural forms, because they use them in daily parlance. These are, as a rule, the most irregular, and here the pupil has an advantage. 2. This should determine your method of teaching. You have to formulate and summarize what the scholars are unconsciously familiar with. 3. Never prescribe rules to be committed to memory till you have given an intelligible explanation of them. 4. Should the plural of a noun be forgotten, invariably induce the pupil to recover it by supplying a simple sentence in which the noun is suggested, though omitted. Mention the singular form before you make the sentence. 5. It is not necessary or desirable to give etymological reasons for the formation of irregular plurals at this time.

THE CASES OF THE NOUN.

Nominative Case.

Objective Case.

After "number" has been mastered, "case" might be explained. First, by means of a few examples, call attention to the different forms which nouns assume in various connections. Then write these two sentences, the one under the other—"The dog chased the cat," and "The cat scratched the dog." When the pupils analyse them, you will point out the transposition of "dog" and "cat" in the sentences, thus arriving at the conclusion that the same noun may be either the subject or object in a sentence. In both situations the spelling is the same. Upon this tell the class that when the noun is the subject in the sentence, it is said to be in the *nominative case*, or nominative form, for "case" just means "form." Write *Nominative* under "cat" in the second sentence. Again show that when a noun is the object in the sentence it is said to be in the *objective case*—"object" and "objective" being almost literally the same. Write *Objective* under "dog." Revise the lesson, dwelling upon the fact that "dog" is in the nominative case in the first sentence, and in the objective in the second, while "cat" also changes its case in the two sentences. The second sentence will appear thus :—

Subject.	Predicate.	Object.
The cat	*scratched*	*the dog.*
Nominative C		Objective C.

Now take up the plural forms. Write, "The caps fitted the boys," and below it "The boys liked the caps." Refer to "caps" and "boys" as being plural, and then deal with them precisely as you did with "cat" and "dog" in the previous examples. Here again the spelling is unchanged in both cases. The class will now realize that there is a nominative and an

	Singular.	*Plural.*
1. Nom.	dog	dogs
2. Possess.	dog's	dogs'
3. Object.	dog	dogs

objective case in the plural as well as in the singular. You may next proceed to write the declension of such a noun as "dog," in so far as its cases have been determined. Leave room for the introduction of the possessive case, which may be located after it is discovered. The form "dog" thus appears in the nominative and objective case in the singular, and "dogs" in these cases in the plural. Then point out that you have left space for a case which has not yet been spoken of, and which is generally located between the nominative and objective in the written declension of the noun. Write the sentence, "The dog's food was eaten by the woman's cat," and call attention to the presence of *s* at the end of "dog's" and "woman's," with a comma before and above it in each instance. But what do "dog's food" and "woman's cat" let one know? The former means that the food belonged to the dog, or, in other words, the dog possessed the food; the latter, that the woman possessed the cat—the woman's cat. To possess a thing is to have it. Now explain that because the dog possesses food, and the woman a cat, the nouns "dog's" and "woman's" are said to be in the *possessive case.* Write this in its proper place—the second—and proceed to dwell upon the *s* added in each instance, which is characteristic of this case. Give the comma the correct name—"apostrophe." Write it, and let the pupils repeat it simultaneously a few times; then summarize what you have taught—namely, that although the noun has an *s* added to it, the idea implied makes it singular, of which the apostrophe before the *s* is generally the index, and that as possession is denoted, the noun is said to be in the possessive case. Put "dog's" in the place of the possessive singular.

Possessive Case.

At this point the characteristics of the possessive case, plural number, should be pointed out. Write the sentence, "The dogs' heads were very small," and with the aid of the class educe these facts—first, that "dogs'" in this case is plural, because "heads" are spoken of, implying a number of dogs;

secondly, that as the dogs possess the heads, "dogs'" is in the possessive case. "Dogs'" is thus possessive and plural. Call attention to the position of the apostrophe after the *s*, which denotes this. Write "dogs'" in its place in the model, and impress the fact that when the noun is possessive and singular an apostrophe is put before *s*, and when possessive and plural after it. Thus the three cases of the noun may be intelligently arrived at, antecedent information and common sense leading up to the acquirement of new facts. Revise the subject, and as you do so impress it by means of question and answer. Decline other nouns on the board, and afterwards write a number of sentences, and challenge the pupils promiscuously to come forward, mark apostrophes, and give reasons for so doing. Thus they will come to realize that the position of this little mark determines the meaning conveyed by the phrase. Once familiarity with a regular noun has been secured, the declension of irregular ones should be taken up. So long as the pupils know the plurals and the declension nomenclature, they can hardly fail to state them correctly. When such nouns as "men's" or "feet's" occur, point out that as these do not end in *s* in the nominative plural, the apostrophe is put before *s* in the possessive. The peculiarity is so striking that it is easily remembered. The meaning of the term "apostrophe" may not be explained at present. The name and its function are the main things to fix in the mind meantime.

It will be worth while to indicate that when two nouns come together the former is generally in the possessive case. This should be abundantly exemplified. Again point out that when the phrase "the boy's cap" can be turned into "the cap of the boy," the noun "boy's" is in the possessive case. Drill on the conversion of such phrases will convince the class of the idea of possession implied in the initial noun. Perseverance and abundant ocular demonstration will combine to secure familiarity with the declension of the noun. Now that the three cases are known, the pupils may be set to decline nouns for themselves, either from grammars or from examples written on the board. Demonstrate the order in which the statements are to be made as follows: Singular—nominative, dog; possessive, dog's; objective, dog. Plural—nominative, dogs; possessive, dogs'; objective, dogs. The declension is simplified by saying: Singular—nominative and objective, dog; possessive, dog's. Plural—nominative and objective, dogs, etc. But as the former formula is conducted on the lines on which the subject has been taught, it will be less confusing, and at the same time more agreeable in every way.

The Order of Declension.

If you have already explained that the verb is transitive when it takes an object or noun in the objective case after it, you may now tell the class that *the noun after a preposition is in the objective case*, and that the preposition is said to *govern* it. This form of phraseology has become so popular that it can hardly be dispensed with. Let the pupils next commit to memory that *after a transitive verb or a preposition the noun or pronoun is said to be in the objective case.* Write a few sentences, and ask the pupils to parse the nouns, that the conventional parsing formula may be acquired. The knowledge of the parts of speech will be gradually becoming fuller as the result of your teaching. The frequent revisal lessons will steadily extend and impress the grammatical terminology and syntax.

The Objective Case after a Preposition.

THE CLASSIFICATION OF PRONOUNS.

The nature and classification of the pronouns might next be fully entered into. Revise in detail what you have taught regarding them as a sort of introduction to the subject of classification; then tell the pupils that, like nouns, they can be divided into groups, or classified; that they are singular and plural, and have three cases as well as genders. Recall the facts already assimilated regarding pronouns, and say that the first group may be made to consist of *personal pronouns.* As you explain, exemplify and write the classification. Personal pronouns are of two kinds—first person and second person. "I" is the first personal pronoun; and because only one person uses it, it is singular. The plural of "I" is easily found. If one boy were to speak of himself and the

Personal.

whole of his class, he would say "we," as, "We did not do it." "We" then is the plural of "I." "Thou" or "you" is the pronoun of the second person. Explain that "thou" is not often used, and that "you" is used when one speaks to one other person. Hence "you" is singular. But "you" is used in addressing a number of people; for example, the whole class is addressed as "you." Hence "you" is also the plural of "you." The pupils know the names of a few *demonstrative* **Demonstrative.** *pronouns*, so you may note these as the second class, and add further that they are sometimes called personal pronouns of the third person, but that the term "demonstrative" is better and sufficient. Because "he," "she," and "it" apply to single objects, they are singular. Point out that in speaking of the boys in a class you use "they," which is also employed when a number of girls or slates are spoken of. This shows that "they" is the plural of "he," "she," and "it"—pronouns of different genders. The term *relative* has been **Relative.** touched upon already. By means of examples show that "who," "which," and "that" maintain the same spelling both in the singular and in the plural. Repeat the explanation that the relative takes its gender and number from the noun going before to which it relates. Attach the name "antecedent" to this noun. Write it, and let it be committed to memory. The sentence, "This is the hat which I got," will illustrate the nature of the relative. Point out that "which" relates to "hat." It is equivalent to "and it," "it" being the pronoun for "hat." It is singular and neuter, because "hat," its going-before-word, or shortly "antecedent," is singular and neuter. The fourth class may include the *interrogative pronouns.* **Interrogative.** To interrogate a person is to put questions to him. Make it plain that when one asks a question he sometimes uses one or other of the pronouns "who," "which," or "what." Write examples on the board; then explain that as these pronominal forms are used in asking questions, they are called *interrogative pronouns*, which, like the relatives, are the same in both numbers. Caution the pupils to be careful when "who" or "which" occurs, because the same word may

Indefinite.

be either a relative or an interrogative pronoun. Finally, take up the last class, the *indefinite pronouns.* Explain and illustrate their characteristics. "One," for instance, might stand for one of anything; hence its indefinite nature. The classification should now have this appearance:—

			Singular.	*Plural.*
PRONOUNS.	1. *Personal*.....	1st.	I	we
		2nd.	thou or you	you
	2. *Demonstrative* .... (or Pers. Pron. of 3rd Pers.)		he, she, it	they
	3. *Relative*................		who, which, that	(same)
	4. *Interrogative*......... (question)		who, which, what	(same)
	5. *Indefinite*.............		one, aught	

It should be revised a few times, copied by each child, and finally learned by heart. With it the scholars may be set to detect and classify the pronouns in a selected passage, to impress the different kinds and test their comprehension of what they have been taught.

THE DECLENSION OF PRONOUNS.

The Method.

From previous instruction the children know that a pronoun may be either the subject or object in a sentence, and they may be credited with knowing that a pronoun is said to be in the objective case after a preposition. It will thus be comparatively easy to convince them that as nouns have a nominative, possessive, and objective case, on the same analogy their substitutes may reasonably be expected to be similarly equipped. You will in the next place proceed to arrive at the various words representing the cases by means of blackboard demonstrations. First, write each sentence in the double form, and then explain it thus:—

NOM. SING. { *John* came home. (John could say) *I* came home. } Here "John" is a noun, singular, masculine, and because it is the subject of the verb "came," it is in the nominative case; so "I" is a pronoun of the first person, singular, masculine, and in the nominative case, subject of "came."

NOM. PLURAL. *John and James* came home.
(They could say) *We* came home.
Here "John and James" (more than one) taken together are plural, masculine, and in the nominative case, subject of "came;" so "we" is the personal pronoun of the first person, plural, masculine, in nominative case, subject of "came."

POSSESS. SING. That hat is *the man's.*
(The man could say) That hat is *mine.*
Here "man's" is a noun, singular, masculine, and in the possessive case; so "mine" is a personal pronoun, singular, masculine, and in the possessive case.

POSSESS. PLURAL. Those hats are *the men's.*
(The men could say) Those hats are *ours.*
"Men's" is a noun, plural, masculine, and in the possessive case; so "ours" is a personal pronoun, plural, masculine, and in the possessive case.

OBJ. SING. He saw *the boy.*
(The boy could say) He saw *me.*
"Boy" is a noun, singular, masculine, and in the objective case, object after the verb "saw;" so "me" is a personal pronoun, singular, masculine, and in the objective case, object after "saw."

OBJ. PLURAL. He saw *the boys.*
(The boys could say) He saw *us.*
"Boys" is plural, masculine, and in the objective case; so "us" is a personal pronoun, plural, masculine, and in the objective case, object after "saw."

Having finished the above, by the aid of the pointer revise all the cases again, and indicate plainly that you have really discovered the declension forms of the first personal pronoun "I." After explaining that *to decline a pronoun is to name it in its different cases*, proceed to collect the various pronominal forms from the above examples, and formulate them as here shown, no superfluities attracting attention.

The Result.

The terms nominative, possessive, and objective are already known, so that abbreviations of these, or even N. P. O., will now be sufficient. These ought to be marked but once. They should not obtrude themselves upon the eye, which should now be filled with the pronominal forms to be remembered. Let the pupils repeat the exercise simultaneously over and over again, thus:—*I, we; mine, ours; me, us.* As they do so, point to the words. After this they may be drilled in the practical application of the lesson. Each of the other pronouns capable of being de-

	Singular.	*Plural.*
1. *Nom.*	I	we
2. *Poss.*	mine	ours
3. *Obj.*	me	us

clined should be dealt with precisely after this model. Evolve the case forms slowly, that opportunity may be given to even the dullest intellect to grasp them.

By substituting feminine nouns for the masculine ones in the above examples, you can make it plain that all the forms of the various cases of the first personal pronoun may be feminine as well as masculine, and that the gender entirely depends upon that of the noun for which the pronoun stands. It has been already proved that "he" is masculine, "she" feminine, and "it" neuter, while "they," standing as the plural of all three, will have its gender fixed by that of the noun for which it stands.

Gender of Compound Words.

It will be well to explain that as a compound thing is made up of two or more things, so a compound word is composed of two or more words. For instance "man-servant" is a compound word. After this write a list of compound pronouns such as "myself," "himself," etc., and explain that while they are compound words, and essentially pronominal, the gender of each is generally determined by an antecedent noun or pronoun.

PRONOMINAL USAGES.

The Relative.

The usages of "who," "which," and "that" might here be exemplified on the board. It has been already explained that the pronoun takes its gender and number from the antecedent. Recapitulate these points, and by means of the annexed arrangement make clear—(1) that "who" is used after persons only; (2) that "which" is used after things only; and (3) that "that" may be used after any noun. Another form of exposition might preferably be adopted, in which the genders will be most prominent. Thus "who" appears after a masculine noun, "which" after a neuter one,

$$\underset{\textit{who}}{(1)}\left\{\begin{array}{l}\text{This is the man } (m.)\\ \text{This is the woman } (f.)\end{array}\right\}\underset{(m., f.)}{\textit{who}\text{ came.}}$$

$$\underset{\textit{which}}{(2)}\left\{\text{This is the book } (n.)\ldots\ldots\underset{(n.)}{\textit{which}}\text{ I bought.}\right.$$

$$\underset{\textit{that}}{(3)}\left\{\begin{array}{l}\text{This is the man } (m.)\\ \text{This is the woman } (f.)\\ \text{This is the book } (n.)\end{array}\right\}\underset{(m., f., n.)}{\textit{that}\text{ fell.}}$$

and "that" after any noun. These explanatory lists should be copied. The essence of the usage of the relative is here in a nutshell, and a child of very moderate intellectual capacity will understand it. This knowledge of the relative will be specially helpful when "composition" is being taught.

RELATIVES.
- "who" after *persons* (*m.*, *f.*)
- "which" after *things* (*n.*)
- "that" after *persons* or *things* (*m.*, *f.*, *n.*)

"As" in place of a Relative.

Peculiarities such as "as" used in place of the relative will be easiest explained when they occur. It takes time and experience to overtake all the intricacies of a language, and no one may hope to master them in twenty-four hours. These explanations should be followed by practice in parsing pronouns, to increase the scholars' knowledge of them by specific investigation.

The Pronoun as Indirect Object.

A sentence containing an indirect object may now be conveniently illustrated. Write, "He gave John the book," and let the pupils analyse it. They will hesitate when you ask them to name the object. Some will suggest "John," others "the book." The usual form of question—namely, *Gave what?* will elicit the fact that "the book" and not "John" is the object. After this all you can do is simply to explain that it seems as if "to" were omitted before "John," and that in such a case "John" is called the *indirect object.* By means of a few sentences show that the pronouns "him," "her," "it," and "them" frequently appear in this connection, each of them being capable of representation by the dative case. They should also know that the preposition is often expressed, not understood. Further make it plain that the indirect object is something totally different from the prepositional phrase forming the enlargement of the object, for which it must not be mistaken.

THE CLASSIFICATION OF ADJECTIVES.

To arrive at an intelligible classification of adjectives, write these phrases: "Four men," "many men," "black men," "good men." Here the pupils will identify the adjectives limiting "men." Point out at once that although all the words before "men" are adjectives, they tell different things. "Four" and "many" tell *how many* or *what quantity* of men there are, while "black" and "good" make known *what kind* or *what like* they are. When people speak of what like a thing is, they are said to refer to its *quality*. The two former adjectives refer to *quantity*, and the two latter to *quality*. Thus at once two classes of adjectives have been arrived at. Arrange

ADJECTIVES.
- 1. *Quantity*.......telling *how much*. (four, many.)
- 2. *Quality*.. .....telling *what kind—what like*. (black, good.)
- 3. *Pronominal*...telling *whose* or *what*. (Pronouns) (my, his, their.)

these classes as here shown, and proceed to illustrate the third class, namely, *pronominal adjectives*. Explain that in such phrases as "my hat," "his book," "their pens," the words "my," "his," and "their," to which the air of pronouns adhere, are virtually used as adjectives limiting the nouns; further, that they have been called "pronominal adjectives" because they partake both of the nature of the pronoun and of the adjective. They tell "whose" or "what." Recapitulate the above explanations, and then enter upon the sub-division of the pronominal adjectives as a supplementary exercise. The most you can now do is to give the new terms and fully illustrate them as in the following list:—

Pronominal Adjectives Classified.

PRONOMINAL ADJECTIVES.
- 1. *Possessive Adjective Pronouns*. ...... (my book) — my, thy, his, her, its, our, your, their — own
- 2. *Demonstrative Adjective Pronouns*... (this book) — *Sing.* this, that; *Plur.* these, those — yon, yonder
- 3. *Distributive Adjective Pronouns*. ... (each book) — each, every, either, neither
- 4. *Indefinite Adjective Pronouns*. ...... (all books) — none, any, all, such, etc.
- 5. *Relative and Interrogative Prons*.... (which book?) — which, what
- 6. *Reflective Adjective Pronouns*...........myself. (self)

Endeavour to convince the scholars that in such words as "my," "thy," etc., there is implied the idea of possession, hence the term *possessive;* that in the sentence, "This man did it," "this," while adjectival in its application, denotes that a certain person is pointed to, hence it is a *demonstrative* adjective pronoun. When referring to the *distributive* adjectives, point out that in "each," "every," "either," etc., the idea of distribution as well as of individuality is implied. In the expression "all men," there is no certainty as to the exact number included in the phrase; hence "all" is one of a class which may be called *indefinite* adjective pronouns. Continue the classification to show that *relative* and *interrogative* pronouns become adjectival in certain connections, and conclude with the exemplification of the nature and function of the *reflective* adjective pronoun. Although the above sub-division is about perfect for all practical purposes, you will find that, however much interest may attach to the study, young children will find it hard enough to distinguish pronominal adjectives by their proper terms; but through time, application, and careful exposition on the blackboard (which is particularly essential in dealing with all classifications), they will yet be able to give the specific name of each readily enough. You will have noted that, apart from the generic terms, the specific ones have been arrived at mainly through the consideration of the words themselves. The nature and function of the words determine the class, hence the classification ought to follow the study of them in their environments.

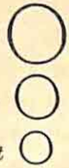
Fuller Definition of an Adjective.

As illustrating the cumulative nature of a definition, you might now proceed to define an adjective fully, gathering the statement from antecedent knowledge. It might run thus:—*An adjective limits the noun to which it is added, by telling how much, what kind, whose or what the noun is.*

THE COMPARISON OF ADJECTIVES.

The comparison of adjectives forms a very interesting lesson, and is not difficult to understand. The subject can be taught by ocular demonstration, while the pupils themselves suggest the facts. Three boys of different heights may be selected, and as you call attention to their comparative sizes, the pupils, after you describe the smallest one as "tall," will naturally term the second one "taller," and the remaining one "tallest." The words should be written as soon as suggested. You may convey the same idea by making a circle on the board and describing it as a "small" ring; make a less one, which the scholars will say is "smaller" than the former. One less than the second they will designate the "smallest." The annexed exemplification should be carried out on the board conjointly with the pupils' finding. Call attention to the three adjectives thus found, each of which limits the noun "ring." The comparison of the sizes of the objects determines the nature of the adjective. The three rings are, as it were, placed side by side, and the adjective characterizing each is determined by the appearance which the object presents. When things are compared they are put side by side, as it were, and thus a comparison is instituted: one object is said to be small, another appears to be smaller, while the third is the smallest. Tell the class that most adjectives admit of being talked of in three sizes. Instead of using the word "size," "degree" is thought to be better, and hence there are said to be *three degrees of comparison*. The adjective expressed in its three forms is said to be compared. Now dwell upon the changes which the original adjective "small" has undergone. In the middle stage or degree "er" has been added to it, and in the third "est" has been added. The vertical line emphasizes these changes. Finally, as you write it, tell the class that the plain adjective, without "er" or "est" added, is said to be in the *positive degree*. When "er" is added it is *comparative*, and when "est" is the termination the degree is *superlative*. These terms should be committed to memory, and also the final syllable characteristic of each. It will hardly be desirable just yet to explain why this nomenclature has been adopted. Re-

1. Positive .... a small |
2. Comparative (*er*)... a small | *er*
3. Superlative (*est*) ...the small | *est*



hearse the lesson and introduce other nouns and a variety of adjectives, also taking "er" and "est." The rule for the comparison of adjectives may be written thus:—*An adjective is compared by adding to its positive "er" for the comparative and "est" for the superlative.* It will be easy to show at another time that if the adjective already ends in *e*, such as "safe," it is natural that the letters "r" and "st" only should be added. The irregular comparison of adjectives should be learned by heart, though the list of positives may not. Peculiarities connected with such words as "happy" and "tiny," where *y* is changed into *i* before "er" and "est," and with "eternal," "dead," "gold," etc., where comparison is impossible owing to the signification of the adjective, should also be dwelt upon. Point out that such words as "beautiful," "necessary," etc., consisting of more than one syllable, are generally compared by putting "more" and "most," or "less" and "least" before them. Be careful, before making free use of the term "syllable," to explain that it is a part of a word which can be sounded by itself. The scholars' knowledge of spoken English and of spelling will be most helpful in guiding them in their endeavours to find the requisite words. Write lists of adjectives vertically on the board, and ask the pupils by turns to name and *spell* the comparatives and superlatives. Before supplying the word yourself try to elicit it by the valuable medium of the sentence in which the desired word is omitted. The context should suggest it, if the pupil knows the word at all. In conclusion, shun the method which proceeds upon the assumption that a definition, tersely stated, learned by rote, and blindly accepted from the text-book, is thoroughly practical and self-explanatory.

The Rule for Comparing.

THE CLASSIFICATION OF VERBS.

An exhaustive study of the verb is rather trying, and in order to grapple with it on a sound basis it will be well to review the pupils' antecedent knowledge of it. They can define it, they know its function in the sentence, and they are familiar with the classification which designates verbs as either *transitive* or *intransitive.* A fuller rehearsal of these two classes will be desirable. Write on the board, "The girl lifts the cat," and explain that the lifting passes over to the "cat," and that the idea is complete when "cat"—the object lifted—is stated. Hence "lifts" is a "passing over," or as it is called more shortly, a *transitive* verb. "Transitive" means "passing across" — *trans* being Latin for "across." Again add the sentence, "The boy laughs." The pupils will feel that here the sense is complete without an object, the verb "laughs" in itself being sufficient to convey a definite idea. Hence "laughs" is a not-transitive verb. But *intransitive* is the same as not-transitive, and as it sounds better, it is applied to all verbs of this order which do not affect an object. The two classes should be tabulated as above. The absence of objects after the forms "is," "are," "was," "were," etc., will enable the pupils to place them without hesitation in the intransitive category. The term *neuter*, which is sometimes used, is meaningless, and should never be substituted for *intransitive*, which conveys a definite idea.

VERB.
- 1. *Transitive*.........over to *an object*
  (The girl lifts..............the cat.)
- 2. *Intransitive*....................*no object.*
  (The boy laughs.)

VOICE EXPLAINED.

By the following method "voice" may be impressed. Write, "I lift the cat," and point out that "I lift" lets one know that the person speaking is acting or doing the thing. In this case the verb is said to be actively named, and it is accepted as being in the *active voice*, because its subject "I" is doing the thing. Further, when the sentence takes the form of "I am lifted," the subject "I" is affected by the verb. The action of the verb affects the subject, hence the subject is the sufferer. "Passive" means *suffering* or *enduring*, and so the verb in this case is recognized as being in the *passive voice*. In short, when the verb is active, its subject is the *doer* or the speaker; but when passive, the subject is the sufferer or is *done to*. Here it will be easy by means of examples to satisfy the pupils that an intransitive verb cannot by itself be used in the passive voice.

THE TENSES OF THE VERB.

Although there are, correctly speaking, but three tenses—the *present*, *past*, and *future*—it will not be unreasonable to make use of at least three others of a more conventional nature. To bring out the characteristic which distinguishes each tense, write these sentences on the middle of the board. Then add

	Time.	*Indicative Mood.*	*Mark or Sign.*
TENSES. (*Times.*)	1. Present	I lift the pen	(s)
	2. Past	I lift*ed* the pen	(ed)
	3. Perfect	I *have* lifted the pen	(have)
	4. Past Perf.	I *had* lifted the pen	(had)
	5. Future	I *shall* or *will* lift the pen	(shall, will)
	6. Future Perf.	I *shall* or *will have* lifted the pen.	(shall *or* will have)

the name of the tense, and its mark or sign as the explanation proceeds. Point out that when one says, "I lift the pen," he not only states a fact or the nature of an act, but he also tells the time of the action. He is supposed, in short, to be lifting the pen at the time he is speaking—at the present time, in **Present.** fact. Hence "lift" is said to be a verb in present time. But the word "tense" is used for "time," and therefore "lift" implies the *present tense*. Explain that "he lifts" is likewise present in point of time. Then write *Present* before the sentence, and "s," the termination of "lifts," in brackets, under *Mark or Sign*. The pupils will **Past.** readily understand that when you say, "I lifted the pen," you state what was done at a time now past. Let them know then that "lifted" is the *past tense* of "lift;" and after calling pointed attention to its termination "ed," **Perfect.** write "ed" as the sign of the past tense. After this deal with "I have lifted the pen," and while you point out that the action is undoubtedly essentially past, convince them that the presence of "have" conveys to the mind a more recent time of the action than that which is merely implied in the verb "lifted." The action is supposed to be past, yet just completed or perfected, and hence "have lifted" is said to be a verb in the *perfect tense* or time. Note its peculiarities as above, and call attention to the succeeding

Past Perfect.

Future.

Future Perfect.

Points to aim at.

sentence, "I had lifted the pen," where the action is supposed to be completed at a time much more remote than that implied in "have lifted." From this explanation arrive at the conclusion that *past perfect* is a fitting designation for this tense of the verb, of which "had" is the characteristic. "Past perfect" is better and more correct than "Pluperfect," which is frequently used. The next sentence, "I shall or will lift the pen," is easily handled. Give the class time to digest the fact that when a person says this he is telling what he intends to do. The action is not begun, that is, not present; not done, that is, not past; but it is yet to take place. But a verb expressing action yet to happen is said to be in the *future tense* or time, and the sign of the future is "shall" or "will." The fact that in the sentence, "I shall have lifted the pen," both "shall" and "have" occur, will make it plain that the tense of the verb is in this case *future perfect*. In this way the six popular tenses of the verb may be taught. You will have observed that the fullest and most careful explanations are necessary at every point. Recapitulate the work at once, using the same verb forms, till the tenses in their sequence and characteristics are thoroughly impressed. Write what is tabulated above, neither more nor less, and at the end of the lesson let the pupils copy it with a view to remembering it. Then other verbs may be handled in a similar fashion, until the universality and reasonableness of the formula is intelligently established. Aim at impressing these three things—(1) the expression of different tenses or times by verbs; (2) the six popular tenses; (3) the signs of these tenses. It is a good plan after you arrive at the correct tense of the verb, to let the pupils detect the change to which the verb has been subjected, or, in other words, the distinguishing *characteristic* of that particular time. It will hardly be necessary to do more than refer to the fact that it is "lifted" and not "lift" that follows "have" or "had," because the pupil's knowledge of spoken English will compel him to supply the verb form accurately as soon as the auxiliary is suggested.

THE INDICATIVE MOOD.

When these tenses have been mastered, you may tell the class that they belong to what may be called the *indicative mood*, or way of expressing the verb; that this mood (as you will indicate) merely states that the thing is done, was done, or will be done, and nothing more; that, in short, when facts are simply stated the verb is said to be in the indicative mood. Occasional special drill on the tenses and their signs will keep them fresh in the pupils' minds, and prevent them from lapsing into oblivion through non-observance or non-usage.

Strong and Weak Verbs.

By-and-by the difference between *strong* and *weak* verbs might be considered. The peculiarities of the past tenses of strong verbs are not difficult to arrive at. The fact that "wrote," for instance, is the past of "write," will suggest itself if, after bringing out that "I write the letter" denotes present time, you ask the pupil to express the sentence to show that the writing took place at a past time. Here also his knowledge of spoken English will guide him to the correct verb form. When "wrote" is arrived at, call attention to its peculiarity. The other tenses will follow as a matter of course.

THE POTENTIAL MOOD.

A Mood to be ignored.

Into some grammars there has been introduced a mood which has been designated *potential*. At first sight it appears plausible and in many respects convenient. Its absurdity becomes painfully obvious when the pupil enters upon a curriculum of classical study. Then it vexes and perplexes. Such expressions as, "He must come," "He could go," "He would love," he persists in rendering in Latin by tenses in the subjunctive mood. The root of the error is his acquaintance with this so-called potential mood in English, to which he thinks the Latin subjunctive equivalent. The mistake is not easily eradicated. As you can teach the parsing of parts of speech more correctly and expeditiously without it, there is no necessity for mentioning such a mood. To be sure, it is easy enough to say that "may," "can," and "must" are signs of the present potential, while "might," "could," "would," and "should" denote past time; but the fabrication, however ingenious, is inconsistent and practically unnecessary. A more substantial method of dealing with the verb will demand consideration.

The Parsing of Verbs designated "Potential."

One of the first parts of the verb which the pupil comes to know is the *infinitive mood.* He readily recognizes it because it has "to" before it. It is not necessary at first to explain to him that "to" forms no part of the infinitive itself. Write in the following order the list of defective verbs—so-called auxiliaries of mood—and bid the scholars make copies and commit them to memory:—

INDICATIVE MOOD followed by INFINITIVE.

Present.	*Past.*	*Pres. Inf.*
may......	might............	as "he *may go.*"
can	could.............	as "he *can go.*"
must		etc., etc.
shall.....	should	
will	would	

After these have been got up, the parsing of a verb in which one or other of them forms the auxiliary should be explained. Point out that in the sentence, "I may go," "may" is simply to be parsed as an intransitive verb, indicative mood, and present tense; that "go," although there is no suggestive or characteristic "to" before it, is the infinitive mood, present tense, of the verb "go," and that it is so after the auxiliary "may." Again write the sentence, "We could have seen him," and parse "could" by itself as an intransitive verb, indicative mood, past tense of "can," used as an auxiliary. "Have seen" will be more readily grasped if you put it as "to have seen," which will be at once recognized as infinitive mood and perfect tense, owing to the presence of "have" in it. The simplicity of the exercise is obvious. Much will depend upon the pupil's knowledge of the above list of verbs, which should be perfectly familiar to him from the first. In this rational and correct way may the conventional *potential mood* be dispensed with. At every grammar-lesson the above arrangement of auxiliaries may be written on the board and appealed to as occasion requires, till its presence before the eye becomes no longer a necessity.

THE SUBJUNCTIVE MOOD.

While the potential mood is essentially a conventional fabrication or device of the grammarian, the *subjunctive* is a proper and consistent mood. Before explaining its nature, test the pupils' knowledge of the indicative, to which it bears a very close resemblance in the matter of word-forms and arrangement. This is the more desirable because the subjunctive is very apt to be mistaken for the indicative. Then state the fact that this new mood of the verb, about to be considered, is exceedingly like the indicative, which has just been considered, and that its tenses are the same in number. Select the verb "come," and, the class helping you, write in columnar form all the tenses of the indicative mood, giving the first person singular only. That done, place the conjunctions "if," "although," "lest," "unless," "except," after them. Then repeat the verb-forms of the indicative, and show the necessary alteration in connection with the present. The arrangement, when completed, will appear as follows:—

Indicative Mood.	Conjunctions *before the Verb.*	Subjunctive Mood.
Present ...I come........................	If, although, lest, unless, except, and words with "ever" added to them.	I come (never *comes*).
Past ....I *came*........................		I *came*.
Perfect ....I *have* come................		I *have* come.
Past Perf..I *had* come..................		I *had* come.
Future ....I *shall* or *will* come.......		I *shall* or *will* come,
Fut. Perf..I *shall* or *will have* come..		I *shall* or *will have* come.

In teaching, lay special stress upon the fact that the forms in both moods are pretty nearly the same, but that the verb is sometimes subjunctive when preceded by one of the conjunctions which have now to be copied and remembered. At the same time let it be known that while the conjunction, either expressed or understood before the verb, forms no part of the mood itself, its presence may render the verb subjunctive. To the grammarian this mood is interesting; but as young children have not sufficient intellectual capacity to grasp the distinction between a hypothetical clause in the indicative mood and one in the subjunctive, too much stress must not be laid upon the naming of the mood where so much guesswork is possible. By-and-by the more rational interpretation should be exacted. Meantime, illustrate the force of the mood by this sentence, "We will stay if you come." Point out that two statements are made, for the sentence contains two predicates. But one of the statements is dependent upon the other. Read the sentence, and impress the idea that the staying is conditional upon the coming. "We will stay" implies the sequence or result, while "if you come" expresses the condition. Explain that it is called *subjunctive* because it is the mood of the verb "added on," as it were. Give a few more examples introducing various conjunctions to establish the general signification of the mood. Summarizing, point out that the subjunctive mood is often preceded by conjunctions which may be accepted as marks indicating a special usage of the verb. The reasons for using indicative mood forms in hypothetical clauses as distinct from those of a purely subjunctive nature will not likely be comprehended at this stage. A profound interpretation of the context must obtain before the child can justify the use of a particular mood; but there will often be little difficulty in training him to distinguish between present indicative and subjunctive forms when they are placed before him. He may do this, although he may be unable to express a reason for the adoption of a particular mood or tense in a specific statement. Later, when the verb "be" is brought forward you will emphasize the peculiarities of the present and past tenses of its subjunctive mood by writing them in full on the board. They should then be committed to memory at once as a special exercise, much more important than difficult.

THE IMPERATIVE MOOD.

To illustrate the precise character of the imperative mood, write these sentences, "Come here," "Give me a book," "Tell him the story." Then say, "You see I have written three distinct sentences. Observe the position of the verb in each. [Underline the verbs.] The verbs begin the sentences, and each of them gives an order or *command*. [Read the sentences to show this.] Now, the word 'imperative' [write it] means 'command;' hence these verbs [point to them] are said to be in the mood of command, or the imperative mood, and further, each of them is in the present tense." Continue the lesson to bring out the fact that the subject—"thou" or "you"—of each verb is understood, and that this omission is characteristic of verbs in the imperative mood. Then write the sentences fully, enclosing the subjects in brackets, that the import of each may be emphasized, and the grammatical arrangement as distinct from the colloquial thoroughly comprehended.

THE INFINITIVE MOOD.

The infinitive mood comes next. Write the expressions "To walk" and "To have walked," and tell the class that when the verb happens to occur with "to" preceding it, it is said to be in the *infinitive mood.* It will be injudicious to attempt to justify the adoption of such a designation; but you may point out that when you say "to walk," you cannot tell how many walk, nor do you state the time of walking. Nevertheless, you may accustom the pupils to adopt the popular notions of time, and call "to walk" the present tense, while "to have walked," by the introduction of "have," will be perfect tense. The infinitive mood may thus be said to have two convenient tenses. Supply a number of verbs, and drill the class in forming their infinitives. Recall the fact that the presence of "to" is not essential to the identification of the infinitive. Write a list of those verbs after which the sign "to" is omitted in English, and set the pupils to learn them by heart. They are "may," "can," "might," "could," "must," "let," "dare," "bid," "do," "make," "see," "hear," "need," etc. It will also be helpful to point out that the verb-word in the present tense of both indicative and infinitive moods is the same, except in the case of a limited number of irregular verbs, which may be remembered as a special exercise of memory.

INFINITIVE. { Present = *to* walk.
Perfect = *to have* walked.

THE PARTICIPLE OF THE VERB.

The participle will have to be carefully explained in order to distinguish it from the participial-looking gerund. The former should be dealt with first. Taking the verb "trust" as a model, write its participles as in the annexed table, and as you do so explain the various forms. Show that while the infinitive form is "trust," "ing" added to it makes it what is called the *participle*. Dwell upon this—the primary distinguishing feature. Then, as no sign of any other tense is connected with it, let it be called the participle in the present tense. Since a perfect tense has been adopted in the list of tenses of antecedent moods, it will be natural to make "having trusted"—where "ing" appears in the tense sign, and not the verb proper—the perfect participle. Although it is really the parts of the active voice of the verb that are under consideration, it will not be difficult, and it will be very interesting, to add those of the passive. "Being trusted," while essentially indefinite in point of time, may be accepted as the present participle, while "having been trusted" would be called the perfect participle. Some call "trusted" the past participle of the active voice. Correctly, it is a *passive participle*, capable of being rendered in its compound form, "having been trusted." Should the pupil yet pursue the study of the verb in Latin, he will become more and more satisfied that this participial form is distinctly passive in its character.

PARTICIPLE "*ing.*"	*Active.*	Present—Trust*ing*.
		Perfect—*Having* trusted.
	Passive.	Present—*Being* trusted.
		Perfect—*Having been* trusted or *trusted.*

A discriminative Lesson.

A valuable discriminative lesson, necessitating much lucidity, might be given on the subjoined sentences, which should be written on the board. In the first, "loved" will be readily accepted as the past tense, indicative mood of "love;" but in the second the pupil will be apt to make "boy" the subject of the verb "loved," instead of "died." If you ask "what the boy did" or "what happened to the boy," you will easily convince him that "died" and not "loved" is the predicate. Show from this that when "loved" stands as it were by itself, and is attributive of "boy," it is the passive participle of the verb, and not the past tense, indicative mood. If you represent it as "a loved boy" that died, the class will be more assured of the participial nature of "loved," which in analysis would be called an enlargement of "boy." After this tell them that participles are virtually adjectival in their nature, and that they limit the nouns to which they are joined. The fact that "reading" is the present participle of the active voice of the verb "read," and that it is adjectival and an enlargement of "he," will be at once apparent if you re-write the sentence in this form, "He, *reading a book*, sat." "Laughing" in the fourth sentence is misleading. Point out that if it be a participle it must be adjectival, and must consequently go with some noun or pronoun. "They" is the pronoun here. It cannot go with it, for then "they" would be "laughing;" nor is it joined to "room," for "a laughing room" would be absurd. It will thus be easily understood that it is a *verbal noun*—that is, a verb by nature and a noun by usage. Its peculiarity will be emphasized if you write below the sentence, "I hear the boys laughing in the room," where "laughing" becomes participial. The infinitive in participial guise need not be closely considered at this stage. The sentence, "He was fond of telling lies," will clearly show that *a verbal noun may have a preposition before it and a noun in the objective case after it.*

	Past Indic.	
1. The boy	*loved*	his book.
	Passive Part.	
2. The boy,	*loved*	by all, died.
	Pres. Part.	
3. He sat	*reading*	a book.
	Verbal Noun.	
4. They heard	*laughing*	in the room.

THE CONJUGATION OF VERBS.

The conjugation of verbs in its restricted sense of naming the principal parts requires attention. The pupils' knowledge of spoken English will make conjugation easy. Tell them that when they name the present, past, and passive participle of the verb they are said to *conjugate* it. Add, also, that with a knowledge of these parts they may readily form the other tenses. Lists of strong and weak verbs might then be presented and systematically and fully conjugated, while their peculiarities are commented upon. The succession of verbs in the list, however, should upon no account be committed to memory.

SPECIMEN OF A JUNIOR PARSING EXERCISE.

Pupils taught thus far on the preceding lines may now be expected to parse somewhat as follows :—

SENTENCE. { "When the huge walls of this ancient castle had fallen, the king's soldiers saw their arrows still sticking in the dark spot at which the greater number of them aimed."

Parsing:—

When—a conjunctive adverb of time, modifying "had fallen," and joining two clauses.

the—a definite article or demonstrative adjective, pointing to "walls."

huge—an adjective of quantity, positive degree, added to and limiting "walls."

walls—a noun, common, plural, neuter, subject of "had fallen;" in the nominative case.

of—a preposition before "castle," which is in the objective case.

this—an adjective, pronominal, demonstrative, pointing to "castle."

ancient—an adjective of quality, positive degree, added to and limiting "castle."

castle—a common noun, singular, neuter, in the objective case, with the preposition "of" before it.

had fallen—verb, intransitive, active voice, indicative mood, past perfect tense; its subject is "walls," because it tells something of "walls."

(the) *king's*—a noun, common, singular, masculine, in possessive case; "king" possesses "soldiers."

soldiers—a noun, common, plural, masculine; subject of "saw," because "soldiers" saw.

saw—verb, transitive, active voice, indicative mood, past tense; its subject is "soldiers," and its object is "arrows."

their—an adjective, pronominal, possessive, added to and limiting "arrows."

arrows—a noun, common, plural, neuter, in objective case, after the transitive verb "saw."

still—an adverb of time, added to and modifying the verb "sticking."

sticking—a verb, intransitive, active voice, present participle; an adjective added to "arrows."

firmly—an adverb of manner, added to and modifying the verb "sticking."

in—a preposition, before "spot," which is in the objective case.

(the) *dark*—an adjective of quality, added to and limiting "spot."

spot—a noun, common, singular, neuter, in the objective case, with the preposition "in" before it.

at—a preposition, before "which," which is in the objective case.

which—a pronoun, relative, antecedent "spot," singular, neuter, in objective case.

(the) *greater*—an adjective of quantity, comparative degree, added to and limiting "number."

number—a noun, collective, singular, neuter, subject of "aimed," because "number aimed."

(of) *them*—pronoun, personal, plural, masculine (relates to "soldiers"), in objective case, with preposition "of" before it.

aimed—verb, intransitive, active voice, indicative mood, past tense; its subject is "number," because "number aimed."

THE PERSONS OF THE VERB TENSES.

The persons of the tenses have yet to be got up, in order that the complete conjugation of the verb may be known. The subjoined method of illustrating a tense fully detailed, and of exposition, may be successfully adopted. The pupils are already familiar with the pronouns. After writing "Present Indicative Active," and under that "Singular" and "Plural" as headings, write 1, 2, 3 at the left-hand side. Then review the pronouns, to make sure that the pupils know them thoroughly. Put "I" beside 1 as being the first personal pronoun, and note "we" as its plural. "Thou" and "you," with their plurals "ye" and "you," will be put after 2; and "he" "she," "it," and their plural "they," after 3. This special arrangement of the subjective pronouns will strike the pupils as being exceedingly simple and

PRESENT INDICATIVE ACTIVE.

	Singular.		*Plural*	
1.	*I*	love..........................	*We*	love.
2.	*Thou*, *You*	lovest or love...	*Ye*, *You*	love.
3.	*He*, *She*, *It*	loves..................	*They*	love.

orderly. The slight novelty of their positions will of itself impress them upon the memory. After fixing the pronouns, pause, and let the pupils, by repeated writing of them, remember them. Then the task is more than half done. At this point his knowledge of spoken English will almost compel the child to supply the verb correctly, more especially if previous instruction has been assimilated. He knows that "I love" is the present tense. If you bid him put a verb after "you," he will say "love," not "loves." He will also tell you readily that it must be "loves" after "he," "she," and "it," as well as "love" after "we," "you," and "they." Thus with a minimum of guidance you may encourage him to construct the tense for himself. The other tenses are equally easy; and after the present, and the subjective pronouns, which are fixed quantities, are thoroughly grasped, the exercise of tense-building will assume the form of an enjoyable pastime. It will be a good plan, after the present tense has been detailed and revised, to wipe off the verb part, and commencing with "loved," the past form, get the pupils to fill in the parts. When they have done this, for "loved" substitute "have loved" in the various persons, singular and plural; and so on, till all the tenses have been overtaken. The blackboard demonstration adds impressiveness and lucidity, and shows clearly that the verb is merely a movable appendage of the pronominal arrangement. After one verb is satisfactorily overtaken, substitute another to emphasize the fact that the principle is a general one, and the pronominal formula stereotyped. The nature of tense construction will probably be clearly understood at the first exposition, yet it has to be indelibly rooted in the juvenile mind by constant repetitions, individual manufacturing of whole tenses, and keenly concentrated observation of the work. What appears simple is often least likely to be long remembered. When the pupils can construct a tense, they should be practised in rehearsing it orally and rapidly. During examination each one should be asked to state a whole tense by himself. In conclusion, be it noted that success chiefly depends upon the stress you lay upon two things—namely,

Two things to attend to.

the fixing of the pronouns in their numbers and names, and the exercising of the scholars in supplying the requisite verb parts. After this the model verb in the grammar will begin to assume quite an attractive and satisfactory phase.

When the imperative mood is detailed, it should be pointed out that from its nature it cannot have a pronoun or appositional noun in the first or third person for its subject.

Nouns may be said to have Persons.

The pupils are aware that nouns, much more frequently than pronouns, are the subjects of verbs. It will now be a very easy matter to show them that these nouns, unless they stand in apposition to first or second personal pronouns, are virtually of the third person. To illustrate this, write a tense, and substitute suitable nouns for the demonstrative pronouns "he," "she," "it," and "they." A noun in apposition is seldom first or second person. Nouns are so often the subjects of verbs that the parrot-wise dubbing of them as of the third person is a piece of supererogation, and can hardly be considered evidence of grammatical knowledge.

THE PARADIGM OF THE PASSIVE VOICE.

The Verb "be."

After the active voice of a transitive verb has been thoroughly grasped, the passive tenses should be expounded. The pupils have already had explained to them the main distinctions between an active and a passive verb, as well as the features characteristic of transitive and intransitive verbs. By adopting the *reductio ad absurdum* principle, you can prove that the latter cannot have a passive voice. At the outset, write on the board the pronouns in their different persons, singular and plural, and establish the fact that this arrangement holds good in both voices. Then proceed to group in full the different tenses of the verb "be," which the pupils may copy and commit to memory. This is most important, as upon a knowledge of this verb—an essential element of the passive voice—ability to form the passive will largely depend. After arriving at all the tenses and their various forms of the indicative mood, if the verb "love" is to be constructed, add "loved," the passive participle, to the tenses, which the pupils should next repeat after this distinguishing appendage is affixed. Then tell them that you have now formed the tenses of the passive voice. They will readily commit them to memory, seeing that they plainly understand their structure, and they will likely without hesitation form the passive voices of other verbs which you may actively name. You will thus see that in the active it is the tense signs and pronominal subjective arrangements that have to be particularly impressed, just as it is the verb "be" in the passive voice.

THE PROGRESSIVE FORM OF THE VERB.

After a little explanation on your part, the exercise of their discriminative faculties will enable the pupils to distinguish accurately between passive and progressive verbs. The latter class should at this point be referred to, as bearing a close resemblance to the former, seeing that the verb "be" forms a characteristic element of both. To illustrate the force and structure of a progressive verb, re-write "be" in its different moods and tenses, and tell the class that instead of appending the passive participle "loved," you are to affix the present participle active, which some one will suggest as "loving." Complete the verb, and run over the tenses precisely as you did the passive ones. Then explain that as this new form of the verb denotes a continuation of the action, or that the action of the verb is progressing or going on, it is called the *progressive* form of the verb. Little difficulty will be experienced in making them comprehend this new function of the verb. In order to obviate the mistake of accepting a progressive form for a passive, write pointed examples, and lay stress upon the fact that after the verb "be" the addition of the passive participle makes the voice passive, whereas the present participle active gives a progressive form. Special attention should be called to two other points. Although an intransitive verb may not have a passive form, it may have a progressive one, as, "I am sitting." This arises from the simple fact that "sitting" is an active, present participle, which when added to "be" makes an intelligible statement. Further, the progressive form is frequently transitive, as in the sentence, "He was writing a letter." Here "letter" is in the objective case, after "writing." At the close of a lesson, to write a number of sentences containing verbs passive and progressive, mixed up in a variety of ways, and ask the pupils to parse them, will form a very impressive and enjoyable exercise.

SOME GRAMMATICAL PECULIARITIES.

Peculiar Subjects and Objects.

Peculiar subjects and objects are often made use of in English. They are so perplexing to beginners that they should frequently be specially studied. A few of them may here be noted. Write on the board these sentences:—

1. *Lying* is sinful.
2. *To lie* is sinful.
3. *Telling lies* is sinful.
4. *I, who* came, saw it.
5. *Thou, who* lovest, heard'st it.
6. *To be good* is right.
7. *What* did *he* say?
8. Tell me *what he said.*

Referring to the first, explain that what is sinful is "lying," which is the subject. "Lying" is here a verbal noun—not an adjective, for it is not a participle. It is equivalent to "to lie" in the second sentence. "To lie" is the subject, and it is the present infinitive of "lie;" hence an infinitive may be the subject of a sentence. In the third, what is sinful is neither "telling" nor "lies," but "telling lies;" hence "telling lies" is the subject, and "lies" is in the objective case after "telling." Pupils are apt to jump at the conclusion that "I" is the subject of "came," and not of "saw," in the fourth sentence. They can hardly go astray if you train them to put the questions *Who came?* and *Who saw?* each of which suggests its own subject. You may also tell them that the relative pronoun is the subject of the verb that immediately follows it in most cases. The fifth sentence is similar in peculiarities to the fourth, but "who," because of its antecedent "thou," is of the second person. In the next example, "to be good" is the subject of "is right;" "right" being here a predicative adjective completing the sense. In dealing with the seventh, point out that "what" is the object of "did say," and is here misplaced, because of the interrogative form of the sentence. In the last sentence, "what he said" is really the object of "tell," but it forms a clause by itself, whose precise nature has yet to be explained.

Nominative of Address.

Write the sentence, "My lords, I am unable to tell," and refer to the absence of any predication to "lords," which in such a case is said to be in the nominative case of address in English, or in the nominative case absolute. Beyond stating the fact you can hardly venture.

Follow this up by placing these four sentences in succession on the board, and proceed to explain certain words in them :—

1. The book is worth *a shilling*.
2. We walked *a mile*.
3. We stayed *an hour*.
4. It weighed *a pound*.

Peculiar Objectives.

In the first, the absence of any governing verb or preposition before "shilling" will perplex the pupils. Tell them that "shilling," being the price of the book, is just said to be in the objective case of price. In dealing with the other three sentences, scholars are apt to speak of the nouns "mile," "hour," and "pound," as being in the objective case after their antecedent verbs. The absurdity of this will appeal to them if you explain that you might weigh a fish or some object, but not a pound, etc. Afterwards tell them that "mile" is in the objective case of distance, "hour" in the objective of time, and "pound" in the objective of weight. Specially guard against accepting these as nouns governed by a preposition understood. The above peculiarities originated in a case-inflected construction, and although the inflection became lost the idiom remained unchanged. No preposition has been elided, nor was there ever a governing word before the noun.

Predicative Adjectives.

The sentences, "The walls are strong," and "The boys are afraid," will illustrate the function and nature of predicative adjectives. You may help in the analysis of them. In the first, "the walls" is the subject, and "are strong" the predicate, "are" being its verb part. But "strong" is an adjective going with "walls," which it limits, and as this adjective forms part of the predication it is called a predicative adjective. Again, because the sense would not be complete without the word "strong," for "the walls are" would be nonsense, "strong" forms what in analysis is frequently called the complement or completion of the predicate. Similarly deal with the adjective "afraid."

The usages of "more."

Write, "Give me more time," and "I cannot laugh more," to show that "more" may be either an adjective or an adverb. In the former sentence it is an adjective of quantity, limiting "time;" whereas in the latter, in which "laugh" is an intransitive verb, "more" is an adverb of degree, modifying "laugh."

Nouns used as Adjectives, and "vice-versa."

Show again by means of the sentence, "Gold is yellow," that "yellow" is functionally a predicative adjective of quality, limiting "gold." Writing under it, "Yellow stands longest," prove that "yellow" is here used substantively, and is a noun, the subject of "stands." Drill the pupils in constructing sentences containing specified words used as different parts of speech.

Peculiarities of the Verb "be."

Attention should be early called to the peculiarities of "be," which takes both the noun before it and the one after it in the nominative case. Formulate and illustrate the fact to be easily remembered.

The interrogative Verb.

As the meaning of the term *interrogative* has been already explained, it will be easy to establish the fact that the verb in a sentence asking a question must be interrogative in its nature.

Peculiarities of "as."

The little word "as" is troublesome, and will require to be specially considered. Apart from its being sometimes used as a substitute for the relative pronoun, its two common usages are not easily grasped by young children. Write, "John is as good as his brother," and demonstrate that the former "as" is plainly an adverb of degree, modifying the adjective "good." Then write the sentence fully thus: "John is as good as his brother is good," to show that as spoken it is abbreviated. This will make the conjunctive force of the latter "as" at once recognizable.

Usages of "the."

"The" is not always an article or a demonstrative adjective. In, "The farther he walks, the more tired he becomes," "the" in both cases is adverbial in its function. It expresses degree, and modifies the following adverb.

Comparison of Adverbs.

That adverbs, chiefly those of degree and manner, admit of comparison, sentences such as, "He is more happy than I," "He was least hurt," will show. "More" is comparative, and "least" superlative. Adverbs ending in "ly" are compared by placing "more" and "most," or "less" and "least," before them.

Parsing of Phrases.

Accustom the pupils to parse such phrases as "at length," "in the meantime," and "by the board," in two ways. They may take them as adverbial phrases, or they may parse the individual words in each group. By this discipline they get an intelligent and comprehensive grasp of the function of words and the structure of the language.

The nature of "what."

It will not be difficult to make the pupils understand the fact that "what" in such a sentence as, "This is what he told me," is equivalent to "that which," or "the thing which," "that" or "thing" being in the nominative case after "is," and "which" in the objective case governed by "told."

The above list very far from exhausts the idiosyncrasies of grammar, but a few of those points which occasion most trouble to beginners have been considered.

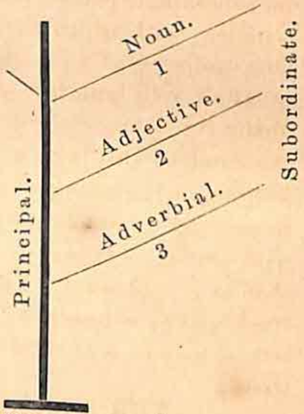
PART III.

ANALYSIS OF A COMPLEX SENTENCE.

The River System.

Hitherto the analysis of the simple sentence only has received attention. The complex one may now be brought forward; and in the first place it will be necessary to explain the nature of the subordinate clause, the one which especially distinguishes the complex from the simple sentence. It is not difficult to give the class a realistic grasp of the sentence. This can be done in various ways. You may proceed to sketch a river and its tributaries, to which a complex sentence may be likened. The river embraces a principal stream, and a number of less important affluents, for which the principal clause and the subordinate ones may respectively stand. Thus the river system represents a sentence, and just as the water of the rivers ultimately constitutes what is called the sea, so all the sentences put together may be said to form the sea of language, or the aggregate of ideas. While this phase of the subject is interesting, and the river-system method of illustration is capable of considerable expansion, what may be called the "tree system" is for various reasons preferable. Referring to trees in general, call attention to the fact that in each there is a stem or trunk which is structurally a form of branch, to which it is materially allied, and bears similar characteristics. The difference is in fact more functional than material. Then point out that in most sentences which are spoken there are likewise a principal clause, which may be likened to the trunk or principal part of the tree, and other clauses which, being less important than the principal one, may be said to resemble the branches, which are not of so much consequence as the trunk. After this, draw a rough outline of a tree on the board similar to the one subjoined, and sufficient to impress the leading features and function of the constituents of a complex sentence. This symbol will enable you to make clear the all-essential presence of the trunk or main support upon which the branches depend for their presence and function. After dilating upon the tree for a little, till these features have been intelligently grasped, introduce the sentence. Alongside of the trunk write the word "principal," which will graphically convey to the understanding the function of such a clause and its relation to the others in the sentence. The *three* lines attached to the trunk and projected to the right represent branches, for which clauses may be substituted. Then explain that as these clauses are not so important as the principal one, and as they depend upon or are supported by the main one, they are called "subordinate," a word expressive of this dependence. As the branches cannot

The Tree System.



COMPLEX.

exist without the tree upon whose presence they depend, so neither can there be subordinate clauses without a principal one with which they are connected. Add also that these subordinate clauses are of three kinds; the three branches you draw will impress this fact. Now summarize. Since the trunk and its annexed branches are said to constitute a tree, so the principal clause and subordinate ones make a sentence. Put a line round the entire sketch to convey to the mind that the contents are a unit equivalent to a sentence. To indelibly impress the dependent nature of the subordinate clauses, wipe off the trunk of the sketch, when the consequent collapse and utter uselessness of the appendages will be apparent, thus proving that a sentence cannot exist without a principal clause. Replace the trunk and its three branches. Remove one branch. It remains a tree; otherwise, it is still a sentence. Take away another. Yet it is a tree, or sentence. Clean off the third branch, and it may even then be called a tree. From this illustration you can prove conclusively that a sentence may exist without subordinate clauses, that it may contain three different kinds of subordinate ones, and that it may include only two or even one. Now give the names. The sentence having no subordinate clauses (the plain, branchless trunk) is the *simple* sentence, with which the pupils are already perfectly familiar. One composed of a principal and one or more dependent clauses (a trunk with branches attached) is called a *complex* sentence. Write the names *Subordinate* and *Complex*, that the pupils may get familiar with them at once. Revise the lesson a few times, keeping in the same groove. Your scholars will now be prepared to consider more minutely the specific characteristics of subordinate clauses. It may be interesting to point out in conclusion that as a tree may be likened to a sentence, and a collection of trees makes a forest, so what we say, being composed of sentences, may be compared to a forest, accepted as an aggregate of trees.

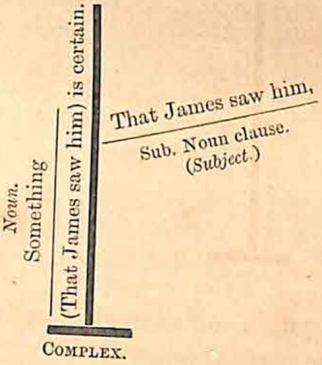
Facts summarized.

THE SUBORDINATE NOUN CLAUSE.

To bring out the nature of the subordinate noun clause used as the *subject* of a sentence will be the next step. Write,

As Subject.

"That James saw him is certain." The fact that two verbs occur here will readily convince the class that the sentence is not simple. Adopt the usual method of starting with the predicates. The first is "saw," and "James" will be suggested as its subject. When "is certain," which will next be detected as predicative of something, is mentioned, and you ask for its subject, the pupils will hesitate to make a suggestion. This is because no single word seems to fulfil this function. Now is the time to point out that the whole statement, "that James saw him," being really what "is certain," forms the subject proper. The acceptance of this will be easy, it is so obviously correct. Write a few short simple sentences to illustrate the fact that, as a rule, it is a noun or substantive that is the subject in a sentence. Put the word "something" over "that James saw him," and enclose these words in brackets. Above "something" write *Noun*, and then explain that as "that James saw him" is the "something" which is certain, and is thus equivalent to a noun or substantive, it is called *a noun clause*. Further, it contains a subject and a predicate. Had the words, "James saw him," only been used, the sentence in this case would be simple; but when the statement runs, "That James saw him is certain," an idea totally different from the former is expressed. The latter is therefore said to be a complex sentence, embodying a subordinate noun clause, which, while forming the subject of the whole sentence, is characteristic of a sentence. To impress its specific features the statement may in the next place be represented in the tree form, as in the annexed sketch. The trunk is virtually the whole sentence; but the minor clause—the noun one—being subordinate in its nature, is represented as a branch. Repeat previous explanations, referring to the tree

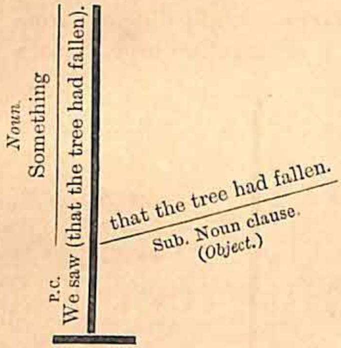


as you proceed. Afterwards write the names of the parts over the whole sentence thus :—

Subordinate Noun clause (*Subject*).	Predicate.
That James saw him	*is certain.*

As Object.

To illustrate the fact that the subordinate noun clause may be used objectively as well as subjectively, write this sentence, "We saw that the tree had fallen." At a glance the pupils will detect the presence of two distinct predicates, which at once suggest that there are two clauses in the whole sentence. They will, with little hesitation, offer "we saw" and "the tree had fallen" as the two clauses. The recognition of the dependent or subordinate one is less easy, because "we saw" and "the tree had fallen" are two succinct and reasonable statements. To simplify the matter you may refer to the presence of the conjunction "that" introducing the subordinate clause, which you will train the pupils to detect by the consideration of its function in the sentence. Explain that we might say that we saw *something*. Here the clause, "that the tree had fallen," might be substituted for "something," which is a noun. Hence the clause is equivalent to a noun or substantive, and may on this account be designated a subordinate noun clause dependent upon "we saw." But "something" would be the *object* of the verb "saw;" so the clause, "that the tree had fallen," is used objectively, for it is the object of "saw," being *what we saw*. Now sketch the sentence in river form and rehearse the lesson, adding names sufficient to impress the leading facts and assist the intellect. Then write the names above the parts as follows :—



COMPLEX.

Prin. clause.	Sub. Noun clause (*Object*).
We saw	*that the tree had fallen.*

Facts summarized.

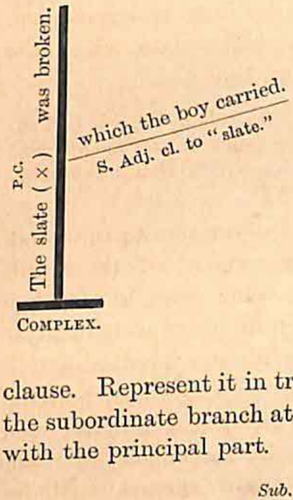
Retain on the board a sentence showing the noun clause in its subjective form, and another in which it takes the place of an object. Then summarize and emphasize the following facts:—1. A sentence may be simple—that is, made up of one subject and one predicate. 2. A sentence may be complex—that is, made up of a principal clause and a subordinate one. 3. The subordinate clause, being equivalent in its function to a noun, may be the subject of the principal predicate, and is called a noun clause. 4. Further, it may be the object of the principal predicate, which in such a case is a transitive verb. 5. The conjunction "that" generally—not always—introduces the subordinate noun clause.

THE SUBORDINATE ADJECTIVE CLAUSE.

The nature of the adjectival clause may next be expounded. To do it effectively write the sentence, "The slate, which the boy carried, was broken," in three forms, thus :—

1. The slate, *which the boy carried*, was broken.
2. The slate was broken, *which the boy carried.*
3. The (*which-the-boy-carried*) slate was broken.
(*carried*)

That done, call attention to the fact that each of these sentences expresses a definite idea, and all convey the same information to the mind. But while this is the case, the arrangement of the words differs, the first and second sentences being more like spoken language than the third. Let the pupils attempt to analyse the first. Here, again, the presence of two predicates will arouse a suspicion that there are two clauses. By putting the usual form of question, namely, *What was broken?* you will bring out that "the slate" is really the subject of "was broken," while the part, "which the boy carried," will be obviously thrown in attributively. Bring out that it is a complete clause containing a subject, predicate, and object, and that while it gives some information about "slate," it can hardly be interpreted as predicating anything of the noun. Hence it will be plain that "which the boy carried" is a less important clause than "the slate was broken." Its dependent character will be forcibly illustrated if you remove the parts, "the slate" and "was broken," thus leaving it by itself as something very nonsensical. Then replace the deleted portions, and draw a line round this obviously subordinate clause to isolate it and show its integral nature. Its dependent character being thus established, proceed to arrive at the function which determines its name. The second arrangement will be serviceable as illustrating the two complete clauses of the sentence. The third will show the function of the subordinate one. Connect the words by hyphens, and read the whole sentence so as to show that "which the boy carried" is virtually equivalent to "carried." But in the expression "the carried slate," "carried" is adjectival in its function. This the class will readily accept. Thus the clause really limits "slate," and so it is called "a subordinate adjective or adjectival clause" limiting its antecedent "slate," which is the correlative proper of "which." The sentence is written in three forms for these reasons: — 1. The first shows the sentence as it should be spoken, the relative and its antecedent being in their proper positions. 2. The second brings out plainly that "was broken" is the predicate of "the slate." 3. The third impresses the adjectival and subordinate nature of the intervening clause. Represent it in tree form as above, taking care to attach the subordinate branch at the point where it occurs in connection with the principal part. Then write the analysis of it thus :—



COMPLEX.

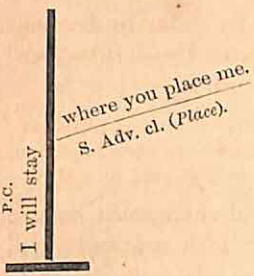
Subject.	*Sub. Adj. cl. to "slate."*	*Predicate.*
The slate	which the boy carried	was broken.

THE SUBORDINATE ADVERBIAL CLAUSE.

The subordinate adverbial clause finally falls to be considered. To show its precise function write these three sentences, each embodying a clause of this nature :—

1. I will stay *where* you place me.
2. You must come *when* I call you.
3. *If* you look at him, he will run.

In the first place, proceed on the old lines, and get from the pupils that in each of these conclusively there are two predicates, proving that there must be two complete clauses. Previous acquaintance with sentences will enable them to go the length of naming the two separate clauses in each. Their understanding that "I will stay" expresses a definite and complete idea, while "where you place me" uttered by itself conveys no intelligible statement to the mind, will satisfy them that the former is the principal clause, while the latter is subordinate. The nature and function of the latter have now to be specially referred to. Point out, after writing "here" above the second clause, that if the sentence were, "I will stay here," "here" would very properly be considered an adverb of *place*, modifying "stay," while analytically it is an adverbial adjunct of the predicate, referring to *place*. It will now be easy to show that "where you place me" takes the place of some such adverb, and that as it is itself a complete clause it may be accepted as *a subordinate adverbial clause of place*, modifying the predicate "stay." Thus you make your class acquainted with what is unknown through the medium of the known. In a similar way the pupils will of themselves probably suggest that, in the second sentence, "when I call you" is an adverbial clause of *time*. The third will be somewhat more perplexing because of the arrangement of the sentence; but if you rewrite it in this form, "He will run if you look at him," the subordinate and conditional nature of the latter clause will be at once apparent. Pursue the subject by dealing with clauses denoting *manner* and *cause*. While you emphasize the fact that the kind of the clause is determined entirely by its function in the sentence, to assist the weaker members of the class, call particular attention to the initial, conjunctive adverb, and show that its character generally determines the kind of the clause which it introduces. Finally, to make your instruction yet more attractive and permanent, represent each sentence in tree form. The first one is here illustrated. Be careful to project the subordinate branch from the verb "stay." Pointed questions should then be put to test the scholars' knowledge of adverbial clauses. The analysis of two of the above sentences might be written thus:—



COMPLEX.

Prin. clause.	Sub. Adverb. clause (*Place*) to "stay."
I will stay	*where you place me.*

Sub. Adv. cl. (*condition*) to "run."	Prin. clause.
If you look at him,	*he will run.*

The introductory Words of the Clause vary.

You will find the pupils inclined to lay too much stress upon the nature of the initial word of the subordinate clause in determining its kind. Experience will teach them that the general rule is not always a safe criterion. By analysing a few special sentences, such as the following, you will put them upon their guard. (*a*) "We heard what he did." Here "what," not "that," introduces a clause substantive in nature and objective in function. (*b*) "We could not see where he went." Here "where," and not "that," introduces a clause similar in character to the last. (*c*) "This is the spot where we met." In this sentence "where we met" is adjectival, limiting "spot," "where" being equivalent to "at which." Thus an adjective clause may be introduced by "where." (*d*) "This is different from *what* he said" should be written fully thus: "This is different from *the thing which* he said," where "which he said" is obviously adjectival in function. A casual survey of the sentence is not sufficient to enable a child to name its clauses

The Clause determined by its function.

accurately. Practice in the interpretation of clauses—a special intellectual discipline—will result in accurate and expeditious analysis. Ever impress upon your pupils that it is the function of the clause which determines the apposite term by which it is designated.

Summary of preceding Lessons.

The rudiments of analysis have thus been taught. The pupils are now expected to know—1. That a complex sentence is made up of a principal clause and a subordinate one. It is well to state that it is complex, although there may be more than one subordinate clause. 2. That subordinate clauses are of three kinds—namely, (*a*) *noun*, taking the place of subject or object in a sentence, (*b*) *adjective*, limiting a noun or a pronoun, and (*c*) *adverbial*, modifying a predicate, and generally beginning with a conjunctive adverb. 3. That the principal clause is not always, though it is often, the first clause of the sentence.

Study of a more complex Sentence.

The analysis of a more complex statement may next be attempted. Write the following sentence on the board :—

(A) The huge walls of the city, — fell with a loud noise,

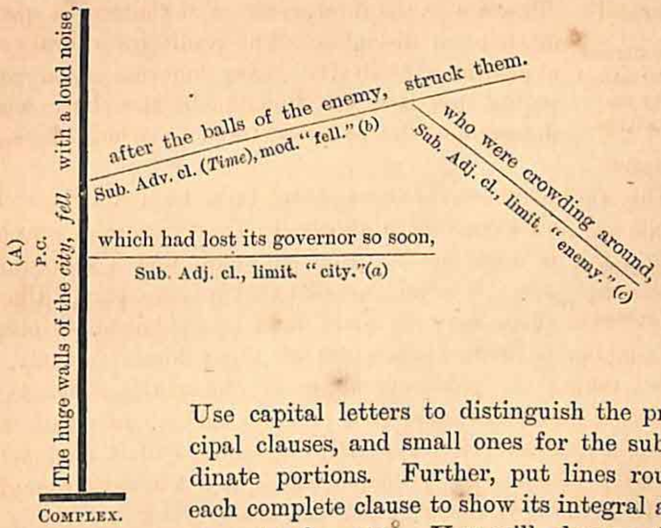
which had lost its governor so soon, (*a*)

after the balls of the enemy, — struck them. (*b*)

(*c*) who were crowding around,

The Tree Form.

In the first place, proceed to detect the principal clause after you have elicited from the class that there are four predicates in the sentence. As the principal one is what all the others depend upon, it will not be difficult, by dropping the clauses by turns, to distinguish it. The accuracy of the selection will become more apparent as the character of the other clauses is evolved. Each clause should be located in the tree arrangement as soon as its function is established, and the whole sentence when exhausted should present this appearance :—


(A)
P.C.
The huge walls of the city, fell with a loud noise,
after the balls of the enemy, struck them.
Sub. Adv. cl. (Time), mod. "fell." (b)
who were crowding around,
Sub. Adj. cl., limit. "enemy." (c)
which had lost its governor so soon,
Sub. Adj. cl., limit. "city."(a)
COMPLEX.

Use capital letters to distinguish the principal clauses, and small ones for the subordinate portions. Further, put lines round each complete clause to show its integral and separate character. You will observe that when the principal clause is detected, the others fit in naturally of themselves. Now proceed to analyse the sentence in a horizontal, detailed form, appealing to the tree and the sentence itself for the identification and supply of the parts, which may be arranged as follows:—

The Sentence analysed.

COMPLEX SENTENCE.	(A) *Prin. clause.*	The huge	walls	of the city	fell	with a loud noise	
		Enlargt. of Subject.	Subject.	Enlargt. of Sub. (*Prep. phrase*).	Predicate.	Adverbial Adjunct of Predicate (*Manner*).	
	(*a*) *Sub. Adj. cl. to* (A) limits "city."	which	had lost	its	governor	so soon	
		Subject.	Predicate.	Enlargt. of Object.	Object.	Adverbial Adjunct of Pred. (*Time*).	
	(*b*) *Sub. Adv. cl. to* (A) modifies "fell."	after	the	balls	of the enemy	struck	them
		Conjunct. Adv.	Enlargement of Subject.	Subject.	Enlargement of Subject (*Prep. phrase*).	Predicate.	Object.
	(*c*) *Sub. Adj. cl. to* (*b*) limits "enemy."	who	were crowding	around			
		Subject.	Predicate.	Adv Adjunct of Predicate (*Place*).			

When the clauses are short and space permits, the above method of analysing minutely will be found very convenient, clear, and interesting. It has the advantage of showing the items in their natural sequence, and at the same time gives opportunity for writing the analytical terminology under each section. But when the clauses are long, recourse may be had to a vertical arrangement. A very popular mode of showing detailed analysis consists in cooping up the different data in small squares, like wild beasts in show-cages, each column of squares, whether full or empty, having a name poised on its summit. This arrangement has several weak spots, while its advantages are not sufficient to make its adoption in the schoolroom necessary. It is intelligent not conventional analysis that is desirable. By adopting this system the child is inclined to imagine that analysis is stereotyped, and that he is making headway when he can write the headings and find "pigeon-holes" into which to stuff the words. It may be urged that it gives the work an air of finish and neatness, especially if the lines are carefully ruled. This is about all it has to recommend it. On the other hand, disgust is created when the pupils find themselves labouring in vain to fit apparent incongruities and ponderous groups of words into spaces which refuse to accept them. Nor is the method fraught with encouragement, when, on the completion of the work, words and phrases appear huddled together in one corner of the gridiron, with a sprinkling of stragglers left out disagreeably in the cold. On the whole, the arrangement, though popular, can hardly be commended.

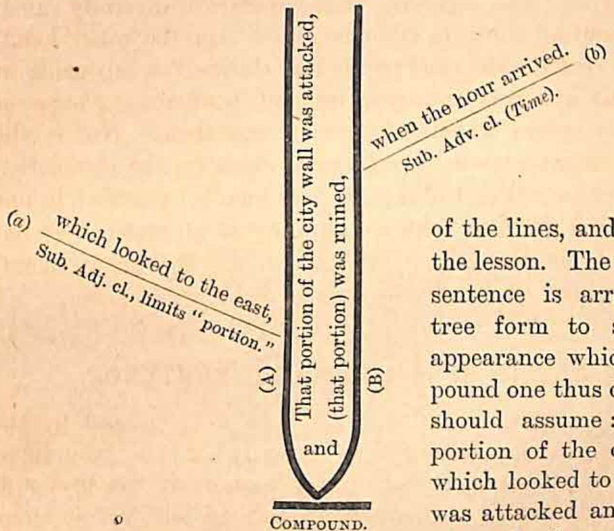
Stereotyped mode of Analysing.

ANALYSIS OF A COMPOUND SENTENCE.

After the complex sentence has been well grasped by the pupils, analysis may be said to be virtually learned. The difference between a complex and a compound, or, if you prefer it, a compound-complex sentence is so marked and yet so small that it will be readily understood after a modicum of explanation and exemplification. To bring out the fact that the essential distinction consists in the number of principal clauses, write these two sentences on the board :—

1. The little boy came, *and the big girl went away.*
2. The little boy came, *when the big girl went away.*

After eliciting that in each of these there are two clauses, explain that in the former two distinct and separate statements are made. In the latter the pupils will at once detect a subordinate adverbial clause of *time*, and will set it down as a complex sentence. You will now dwell upon the fact that as the first sentence contains two independent statements, connected by "and," each of which makes sense without the other, it consists of two principal clauses. When this is the case it is called a *compound* sentence. Before proceeding to illustrate it further, remind the class that a tree has sometimes two or even more trunks or principal parts. Then draw two vertical lines springing from the same base, upon which you will note the connective "and." Write the clauses alongside of the lines, and rehearse the lesson. The following sentence is arranged in tree form to show the appearance which a compound one thus dealt with should assume :—" That portion of the city wall, which looked to the east, was attacked and ruined when the hour arrived."


(a) which looked to the east,
Sub. Adj. cl., limits "portion."
(A)
That portion of the city wall was attacked,
(that portion) was ruined,
(B)
and
when the hour arrived. (b)
Sub. Adv. cl. (Time).

COMPOUND.

The two principal clauses are fixed first, then the subordinate ones. Such a sentence should invariably be written in full, in order that the intellect may be aided, and the difficulties connected with the interpretation of the abbreviated form removed. A pupil that can analyse a simple and a complex sentence will very soon be able to break up a compound one of any form or magnitude. Drill him on plain, pointed sentences first, and gradually introduce to his notice more comprehensive and intricate ones. The three classes of sentences may now be defined and committed to memory.

Sentences defined.

1. A *simple* sentence contains one subject and one predicate.
2. A *complex* sentence contains one principal clause, and one or more subordinate ones.
3. A *compound* sentence contains principal clauses, and may have subordinate ones.

The classification of compound sentences, if attempted, should take place only after the pupils are perfectly able to analyse and name the clauses in any sentence. This is the primary desideratum, to which supplementary nomenclature is secondary. Unless the teacher is quite familiar with the subject, a grammar in the hands of the pupils is practically worthless. Still any intelligible and sound system laid down in a manual, if carefully explained, ought to be understood by the class. A sentence fully analysed in its general and minute forms might appear thus on the vertical principle :—

Specimen of a Compound Sentence analysed.

The Sentence. { "She whom he loved so dearly was dying; and he threw himself down by her bedside sobbing, because he had once wronged her; but she did not know that he was heart-broken."

1. General Analysis :—

She was dying ....(A) *Principal clause.*
whom he loved so dearly ....(*a*) *Sub. adj. cl. to* (A) *limits "she."*
(*and*) he threw himself down by her bedside sobbing.................................(B) *Principal clause.*
because he had once wronged her ....(*b*) *Sub. adv. cl. to* (B) (*cause*).
(*but*) she did not know........................(C) *Principal clause.*
that he was heart-broken...............(*c*) *Sub. noun cl.* (*object of "know"*).

2. Minute Analysis :—

(A) { She......................*subject.*
was dying ....*predicate* (*complete*).

(*a*)	whom	*object of "loved."*
	he	*subject.*
	loved	*predicate.*
	so dearly	*adv. adjunct to "loved" (manner).*
	and	*(connective).*
(B)	he	*subject.*
	threw	*predicate.*
	himself	*object of "threw."*
	down	*adv. adjuncts of "threw" (place).*
	by her	
	bedside	
	sobbing	*enlargement of "himself."*
(*b*)	because	*adverbial adjunct to "wronged" (cause).*
	he	*subject.*
	had wronged	*predicate.*
	her	*object of "had wronged."*
	once	*adv. adjunct to "wronged" (time).*
	but	*(connective).*
(C)	she	*subject.*
	did know	*predicate.*
	not	*adv. adjunct to "did know" (negation).*
(*c*)	[that] he	*subject.*
	was	*predicate (incomplete).*
	heartbroken	*complement of "was."*

A SPECIMEN OF A PARSING LESSON.

Now that the whole grammar has been traversed in so far as it bears upon the parsing and analysis of sentences, it may be useful to show the mode of conducting a fairly-advanced grammar lesson. The sentence just analysed might be handled thus :—

She—a demonstrative pronoun, third person, feminine, in nominative case; subject of "was dying." Give the masculine and neuter pronouns. Name the plural. If "they" were the subject, what would the verb become?

whom—a relative pronoun, singular, feminine, in objective case. Name its antecedent. Why in objective case? Is this the usual position of the object? What would it be were it in the nominative case? What is the possessive singular of "who"? What is the plural of "who"? What does the relative receive from its antecedent?

he—a demonstrative pronoun, singular, masculine, in nominative case; subject of "loved."

loved—a verb, transitive, active, indicative mood, past tense, third person singular, agreeing with its subject "he." Why is it transitive? What is the mark of the past tense? Name its object. Conjugate the verb.

so—an adverb of degree, telling *how much*, modifying "dearly."

dearly—an adverb of manner, modifying "loved." To what are adverbs joined? What is the adverbial mark about "dearly"? Compare "dearly." "So" can't be compared.

was—a verb, intransitive, active, indicative mood, past tense, third person singular, agreeing with its subject "she." What would it be if it were present tense? Conjugate "be." What is the plural of "was"?

dying—a verb, intransitive, present participle, limiting "she." What kind of verb would "was dying" be called? Name the passive participle of "die." How is the passive voice of a verb formed?

and—a co-ordinative conjunction, joining two clauses together. Name other co-ordinative conjunctions. Classify conjunctions.

he—(as before) subject of "threw."

threw—a verb, transitive, active, indicative mood, past tense, third person singular, agreeing with its subject "he," which is in the nominative case. What is the present tense of "threw"? Conjugate "throw." Name the present participle of it. What is its object?

himself—a personal pronoun, compound, singular, masculine, in objective case; object of "threw." Why is it called compound? Give its feminine form, its neuter, its plural.

down—an adverb of place, modifying "threw," because "he threw down." Classify adverbs. Define an adverb.

by—a preposition, placed before "bedside," which is in the objective case, and is said to be governed by "by." What is the function of a preposition? What words does "by" join?

her—a possessive adjective pronoun, limiting "bedside." Name other possessive adjectives.

bedside—a noun, common, singular, neuter, in objective case, after the preposition "by." Give its plural. Spell the possessive singular.

sobbing—a verb, intransitive, active voice, present participle, limiting "himself." Conjugate "sob." And so on.

The above will perhaps be sufficient to illustrate the method of parsing, and the subsequent questions which might be asked with a view to quickening the intellect and recalling antecedent information. The concomitant questioning will also accurately gauge the pupils' knowledge of the subject. Parsing is not to be depended on when the answering is haphazard and casual, and no such test is applied as that involved in the pointedly-put questions, which really make the exercise of educative importance.

CONCLUDING REMARKS ON TEACHING GRAMMAR.

Order of Teaching to be Natural.

A few concluding remarks on the teaching of grammar may now be offered. In teaching analysis and parsing for parts of speech a natural order should be observed from the commencement. First deal with sentences as wholes, or, in other words, handle spoken language; then break them up into the sections called clauses, upon which the idea to be conveyed depends. This is called analysing the sentence. At the same time bring under the child's notice the nature and use of individual words, when the parts of speech are said to be dealt with. This is called parsing for parts of speech. It will ever be well to keep the two studies alongside of each other, thus making it obvious that the double nomenclature applies to the same word or phrase. This dovetailing process should be carried out assiduously in the earlier stages.

Instruction to be thorough.

In parsing, unless the child's knowledge is thorough, and deals with the subject from its commencement, he cannot be expected to specify the peculiarities of individual words with any certain degree of accuracy. In the case of a badly taught pupil, parsing becomes guessing. Betimes he will rattle off a jumble of erroneous grammatical terms, mere perfunctory jargon, for which an aching anatomy is compensation. In such a case stupidity, thickheadedness, and laziness are freely attributed to him. He dreads and nauseates the task, and when the schoolroom becomes a species of bear-garden, blame attaches to the helpless child. In the daytime he shudders at the idea of grammar, at night it presses upon him as a hideous nightmare. In itself it is one of those subjects the individual parts of which fit into each other, and one link missing may weaken the whole system. In order to carry every child along with you the same lesson should be frequently repeated, and the blackboard freely used on every occasion for clear expositions and pointed illustrations. Sentences or words which require explanation can only be satisfactorily

The Board essential in Teaching.

dealt with on the board, whence the greatest number can reap the greatest benefit. The impression made by means of the board is infinitely deeper and more intelligible than that which the grammar text-book supplies. The subject is one which admits of explanation, and the pupil should never be allowed to use technical expressions whose import he does not comprehend. Be careful not to use words or terminology ahead of your teaching. If you have occasion to do so, depend upon it that the subject is not being taught orderly and methodically.

Punishments.

Like arithmetic, grammar at every point appeals to the understanding. Punishment during the lesson only dulls and freezes the intellect, and for a period renders it absolutely impervious to subsequent instruction. To assume a testy attitude or harsh mode of diction as an *open sesame* to the juvenile intellect will undoubtedly ruin your case, and the grammar lesson, instead of being an intellectual treat, will rise up as a deterrent ogre, at all times to be sedulously eschewed. If, after having explained a thing to a pupil, you find him still ignorant of it, you must not be disheartened. The case is not hopeless, though it may be discouraging. A further effort of patient exposition and ingenuity, and increased simplicity of language, will ultimately tide him through the quicksands amidst which he is labouring.

Appeal to the Reading Book.

After explaining a particular point on the board, refer to passages in the reading lesson, containing in a marked degree the essentialities of the lesson you have just taught. Thus your instruction will be emphasized and impressed. Although most grammars bristle with pointed sentences, those selected from the reading book are preferable, because they enable you to refer by the way to antecedent instruction, and to revise in a practical and profitable manner what has been already taught. Questioning should always be concomitant with instructing. Knowledge is the outcome of both. The revisal lesson prevents the subject from lapsing into oblivion.

There are certain points connected with the parts of speech upon which the pupil's knowledge and progress largely depend. For instance, in connection with the verb, the main points to lay stress upon, after its transitive or intransitive nature is determined, are the tense names and signs. These constitute the backbone of the verb, just as the verb "be" is really the backbone of a passive verb.

Stress to be laid upon Points.

Keep in mind that no child can parse fast. A parsing habit or rapid enunciation of a particular formula may be acquired, and occasionally it may bear the semblance of accuracy. Rapid utterance should arouse suspicion and encourage questions to test its value. Much thought and care are involved in grammar, where the environments are so subtle and pitfalls so numerous. The pupil when parsing must have his wits about him, and be constantly on the *qui vive* for peculiar usages and collocations of words.

Rate of Parsing.

Grammar cannot be taught mechanically; it must be taught intelligently, and to effect this, progressively. In teaching you must bring yourself to the level of your class, and be careful not to attempt too much at a time. When the matter is not understood, not assimilated, the teaching becomes cramming. The mind resents pressure, which engenders loathing and disgust. The attention of the pupils and the character of their answers will enable you to judge of their progress. Experience will tell you when a little extra knowledge is to be added, as well as where to draw the line. Your method of teaching and the mental calibre of the pupils will have much to do with the rate at which the ground is to be covered. Grammar in the hands of a skilful teacher presents many fascinations to the pupil. On the other hand, where the instructor has no heart in his work, the pupil derives no pleasure or satisfaction from the task. He is daily floundering, inextricably, hopelessly lost, amidst the mysterious and bewildering mazes of eight parts of speech. Only eight, observe. And yet grammar is generally considered *facile princeps* the ogre of the school curriculum. If you take into serious consideration the educational import-

The Subject to be taught intelligently and progressively.

The Teacher should be able to impart Knowledge.

ance of grammar, and the amount of careful and well-directed teaching necessary to make pupils understand it, keeping also in view the intellectual rather than the mechanical aspect of the study, the folly of attempting to give a lesson to an advanced class without a requisite measure of competence and previous preparation, will be at once apparent. In order that the instruction may be effective, the teacher must know the subject thoroughly himself; and not only so, but he must be able to impart his knowledge to others. A teacher is seriously incompetent who has the knowledge but is unable to transmit it. He should have carefully studied the lesson beforehand, in order that he may handle it ably, succinctly, and explicitly when he stands before his class.

Teacher and Teaching.

Not only must your expositions be clear, but you must be resolute in your manner. You should carry along with you at every step both the eyes and minds of the pupils. Every child is entitled to your instruction and supervision, and weaklings, when discovered, should receive a double share of attention. The undivided attention of the pupils is at all times essential, and casual questions will readily test the degree of their faithfulness to your instruction. As instructor you cannot afford to exhibit dubiety at any point. Hesitancy and uncertainty on your part, if once detected by the pupils, are utterly antithetical to all successful teaching, and instil into their minds feelings very different from those imparted by that sympathetic, winning mien which adds encouragement when you slowly unfold the matter in all its simplicity and beauty to the delighted intellect of the imbibing learners. After you commence the lesson, if possible let nothing disturb you till you have ended it. The sequence of topics should flow so naturally that the current of intelligible explanations can only be stopped at a serious loss. It should run smoothly as a stream till the store is exhausted, and every child has drunk deeply of your instruction. The moment you detect inattention, listlessness, or yawning, take heed. These symptoms denote that you are not carrying the whole class along in the current of your reasoning, and should induce you to endeavour to make the matter yet more interesting. Rather overlook an insignificant misdemeanour than disturb the equanimity of your pupils by referring to it at the time. The awkward attitude of a boy or a girl, or the noise accidentally made by the shifting of a foot or the dropping of a slate, should be overlooked for the nonce. The good discipline which you exercise at the proper time should render such accidents more rare than common. The very orderliness of the subject should foster a measure of love for it.

Interruptions.

In dealing with analysis, in advanced classes in particular, the work exhibited should be self-explanatory. Hence, the grammatical terminology should be written after the words themselves. Again, the general analysis should precede the minute, and if possible both should take precedence of parsing for parts of speech. In both analysing and parsing, in order to comprehend, it is most essential that the scholar should observe. The function of the blackboard, it is again urged, is to aid the intellect through the eye. He should not only know that a sentence consists of certain parts, but he should also see them. The study of the grammar of the language should come so naturally to the English-speaking child that there should be no need of mechanical aids, even were these possible. It is hardly fair to call the method of demonstrating analysis by the tree system mechanical. It is less so than the analytical arrangement of words in a mass of "pigeon-holes;" because, while it gives the pupils a more tangible grasp of the subject, it is, after all, but a graphic means designed to secure an intellectual end. In order to meet the case of every member of the class, repetition of the idea in a variety of ways should be practised.

Observation aids Intellect.

Definitions and classifications, as set down in manuals, should not be committed to memory till they have been explained to such an extent that their arrangement appears both essential and appropriate. The explanation and exemplification should invariably precede the committing of them to memory. A good definition condenses and clinches all the

Definitions.

facts into one compact whole, while it tends, at the same time, to lessen the strain upon the mind, from the fact that in its brevity it embodies the essence and yet the simplification of the matter.

Testing the Pupils.

The proficiency of the pupils may be thoroughly tested by your setting them to parse or analyse a prescribed passage on slates or paper. Whatever is thus accomplished should give evidence of as much care and clearness of detail as any model which may be set for the class to imitate. Analysis, in particular, lends itself to orderliness; and the arrangement of details, once advocated, should be sedulously adhered to.

Simultaneous Parsing unprofitable.

The pupils should be taught to parse words individually as well as successively. Simultaneous parsing should be eschewed as unprofitable to a degree. It is only useful when a parsing formula is being learned from the blackboard. The formula which should incorporate all the requisite details in natural sequence may in this way be expeditiously got up. To be sure, while there is nothing vitally important in the order of the statements, there is no reason why a stereotyped mode should not be cultivated and adhered to, since the study is one in which orderliness forms a dominant feature. When the parsing is executed on slates, a whole line should be devoted to each word, which should itself be written at the commencement of it. Take care that the terminology is not too much abbreviated.

The Teacher's Language.

The language you use should be a paragon of excellence. Depend upon it that nothing will tend so much to make good English speakers and writers as your own diction, which, while it is simple and unaffected, should be grammatical in expression, graceful in phraseology, and altogether a fit model for your pupils to imitate

CHAPTER VII.

INTELLIGENCE.

THE JUNIOR CLASSES.

THE cultivation of intelligence in young children demands the greatest amount of patience, assiduity, and even *naïveté* from the teacher. Their natural timidity and shyness render some art, and even cunning, necessary in order to extract from them an expression of their ideas. Many of their notions of things are very erroneous, and it is to the teacher's advantage that they are so amenable to correction. But no matter what his ideas may be, the pupil should be encouraged to express them in his own simple language. It is often the case that when he is asked to give the meaning of a word, he fails to realize exactly what is desired. In the first place, then, you will take steps to let your pupils know what is meant by "a meaning." This may be illustrated by means of a familiar example. Taking the sentence, "The crow dropped the pebble into the pitcher," explain that "to drop a thing" is "to let it fall;" that "a pebble" is a small rounded stone, such as may be seen at the sea-side—or if the situation of the school does not favour this idea, say that it is somewhat like a marble in size and appearance—and that "a pitcher" is a long or high sort of jug for holding water. Then putting these explanations together, tell them that the saying just means, "that the crow let the small rounded stone fall into the dish for holding water." It is particularly desirable that at this early stage the class should

The Meaning of a "Meaning."

get a conscious grasp of what a meaning should convey to the inquiring mind. In an incredibly short time children may be taught to give meanings, fearlessly and readily enough, in their own guileless, verbose phraseology. One is very apt to forget that the teaching of meanings and the cultivation of intelligence are in a degree synonymous. Intelligence has to be cultivated, and to accomplish this a systematic, progressive method has to be adopted.

Pupils not to be left to themselves.

The method is decidedly bad, in fact it is no method at all, which leaves the task entirely in the hands of the pupil. Possibly a home lesson is prescribed, and the tender, distracted intellect has to exercise itself to discover a list of meanings before the morrow. In such a case the distressed and grumbling parent, or it may be the dictionary, is the ready medium of enlightenment. It is painful, to say the least of it, to think of scholars of tender, plastic intellects struggling in such an irksome and aimless way to meet the teacher's wishes, and escape that corporal punishment which in such a case is apt to be meted out to the disobedient. The proceeding, while exceedingly unjust to both parent and child, can hardly be called educational. It is most injurious to the learner to cram his mind with unintelligible words and ideas, and to subject his mental faculties to the painful strain of grasping and retaining repeated doses of mysterious word equivalents. The intellectual exercise should be characterized by an easy, invigorating, and enjoyable employment of the brain. When meanings are not taught, they can hardly be said to be learned; but after all, a pitiful attempt may be made at examining what has been neither taught, learned, nor understood. *You must carefully distinguish between teaching and examining as being two distinct branches of educational science.*

Object Lessons valuable.

Whether in teaching or in examining accept with pleasure simple though wordy meanings, provided they contain a trace of the correct idea. Object lessons are most valuable as tending to cultivate intelligence and intelligent answering. Through them children acquire a broad knowledge of things in general, and of the fundamental data upon which the superstructure of subsequent information may be laid. The few explanations and meanings given in most reading books will tend to supplement to some extent your teaching, and will encourage the pupils to pursue the study.

Every Answer to be accepted.

It is very unjust to ask a child to explain the meaning of a word or phrase which you are conscious he is unable to do, and it is equally unfair to accept a meaning or statement which you are certain he does not understand. It is injurious to progress to throw cold water upon a wrong answer or a meaning not exactly to the point. A careful, thorough teacher will readily accept it, turn it over, and at the same time make plain to the class for what word such an answer would have been a good and correct meaning. This is educating the child, and future success is guaranteed. If, on the other hand, you despise the answer, and proceed to chide the pupil, you will certainly dishearten him, and discourage him from making any further spontaneous, intellectual effort. Your acceptance of his suggestion, although a wrong one, appeases his mind, and strengthens his confidence in you as his teacher. It at the same time dispels any tendency to reticence on the part of his class-fellows.

Unnecessary Kinds of Questions.

There is a class of words which are simple enough in themselves, and their meanings are practically understood by everybody, but they are somewhat difficult to explain. Inexperienced teachers are more apt to fall into the error of asking for their meanings than older ones. To this class belong such words as "crow," "man," "life," "wood," "iron," etc. It is quite absurd to ask what a "crow" is, or what "wood" is. To say that a "crow" is a "bird," and "wood" "stick," is to say the least of it superfluous. The child, you may be sure, knows quite well what is meant by the term, or implied in it, although it may be utterly beyond his or a higher intellect succinctly to define it.

The Dictionary.

The idea of a *meaning* at once suggests a dictionary, a compendium almost totally unnecessary at this stage. But pupils in their straits will use them. It is very important that you should be careful in accepting synonyms gleaned from a dictionary, which, while perplexing, you know quite well are just as unintelligible to the pupil as the primary words. At this stage the teacher should be the dictionary. You will thus be enabled to adapt yourself and your explanations to the requirements of every intellect. Bear in mind that in any class the meaning of a word, though couched in ever so many words, is far more deserving of praise, and shows far more intelligence, than the solitary unintelligible synonym culled from the dictionary, and uselessly and temporarily committed to memory. Further, when you do make an explanation, and thereby correct or supplement the child's ideas, use the simplest language possible, and be careful not to defeat your object by the use of incomprehensible phraseology.

A rudimentary Form of Examining.

Sometimes the practice obtains of allowing the pupils of junior classes to answer questions on the story and meaning of the lesson, while they follow the teacher, from the book itself. Thus he asks, "A crow one day flew to a what?" and the scholars, who have been running their eyes and fingers along the lines, at once halt, and simultaneously shout, "a pitcher." This luxurious form of discipline may be indulged in for a week or so by way of commencement and encouragement; but it is dangerous to persist in it, simply because, while it savours of laziness and vain satisfaction, it does not tend in any degree to strengthen or cultivate the mental faculties or even the observation, nor is it calculated to benefit the pupils to any appreciable extent.

Knowledge is cumulative.

The memory plays an important part in the growth of intellect. It is essential that antecedent explanations should remain fresh in the pupil's mind, as a sort of basis from which a higher effort may spring. At the same time it is possible to overstretch the memory. It is your duty, while supplying it with suitable food for its natural development, to keep it in due bounds, and studiously to avoid cramming it. It is easily weakened by over-pressure. Like the stomach, it will only retain and digest so much at a time, so that the present supply must be digested and assimilated before the next is added. The answering, if genuine, should proceed from a calm and thoughtful mind, a well-balanced memory, and altogether spontaneously and frankly. Such traits as indifference, or shyness to answer what a child really knows, at once betoken unnatural and unskilful training. In conclusion, in only certain circumstances may children be expected to be taught "meaning" at home; so the teaching of this branch very properly devolves upon the teacher.

THE INTERMEDIATE CLASSES.

Intelligence grows.

The child's ability to interpret what he reads should keep pace with the progressive phraseology of the reading book. At the same time he should grow to express his ideas in language at once more thoughtful and more grammatical. His vocabulary should also be expressive of his knowledge. It is a healthy and gratifying sign of sound instruction and steady progress if the younger pupils show ability to give an intelligible interpretation of the story or passage read in their own simple phraseology without timidity, and if possible in a series of short neat sentences. But advancement betokens a deeper and closer scrutiny of the meanings of individual words. No matter what the nature of the lesson may be, there is but one rational and methodical way of preparing the meanings and of testing the value of the exercise. It was pointed out that before the reading of the lesson a preliminary review of it was specially desirable. This review was invariably conducted by the teacher. The question now arises, "Does not this discipline tend to foster in the pupils a feeling of dependence?" Certainly not; the burden of individual preparation is not entirely removed from the shoulders of the scholars. They have still to exert themselves independently of the teacher. Laziness is never to be encouraged, self-reliance is. Your function as teacher is not to explain what the child may reasonably be expected to know or even discover for himself; but you are supposed to be able to gauge the limit of

The Teacher's Function.

his information, and this you ascertain by asking him such questions as will test him and enable you to form an accurate estimate of his knowledge and capacity. The information you convey is intended to lighten the task, not to remove it altogether. You make the matter more tangible by bringing it nearer to him, and making it easier for the mind to carry because of its increased intelligibility. Thus learning becomes a pleasure rather than a loathsome ogre. You instil into the children's minds a love of instruction and of school life, as well as a desire to learn, because, while they realize your daily sympathy with them in their studies, they do not think of you as an austere taskmaster demanding what they cannot give and expecting them to know what they have no means of finding out and never heard explained. They should realize that you are their friend training their intelligence, not testing it from day to day without imparting instruction. It will be well to keep in mind, then, that individual words demand special consideration, for upon them the idea embodied in the phrase or clause depends. To a young mind there is much difficulty connected with the understanding of meanings, and where the teacher has difficulty in making the interpretation intelligible, the pupil will find the comprehension of it by no means child's play. The maximum of benefit will accrue where both teacher and taught make a joint effort to arrive at the proper meaning.

The Dictionary.

Hitherto dictionaries, if used at all, must be appealed to sparingly and guardedly. At this stage the pupils are hardly sufficiently advanced to make an intelligent and instructive use of them, and too frequently in their hands they are a degree worse than useless. In a majority of cases they mean mere waste of time, loss of energy, discouragement, nor is the shadow of cramming altogether absent. Only the most intelligent pupils are capable of using them with real lasting benefit. It is your function to detect these, and grant them license to use the dictionary for themselves. It is perfectly palpable that, when a child searches in the dictionary for the meaning of such a word as "amusing," and finds it set down as "entertaining," the latter conveys to him no new information, nothing a whit more intelligible. In fact, an exercise of this kind is of no real educational value. He spends a certain amount of time in endeavouring to remember the synonym; and this effort—a mere discipline of the memory—is about all the benefit he derives from the study.

But the subject carries with it another important phase. The one-word equivalent peculiar to the dictionary, being difficult to deal with because of its being often more terse than lucid, has to be approached and commented upon with caution, so as not to shake the child's confidence in what he will yet come to appreciate as a valuable and instructive compendium. Meanings whether accurate or inaccurate which have cost the child time and pains to collect must be accepted to obviate discouragement. At the same time, as has been already indicated, your own interpretation and corrective influence have to be judiciously exercised. Meanings that are not understood, as well as those that are erroneous, are practically worthless. The easier you make the apprehension of the meaning the longer it will be retained. Again, you will do well to dispel as soon as possible the delusion that only such a meaning as a dictionary supplies can be correct, by pointing out that for such a word as "amusing" the expression "causing fun" is a sufficient and intelligible explanation. The pupils will have no difficulty in realizing this, nor will they hesitate to exert themselves to tender you similar meanings. But you will find it very beneficial to train the pupils of the junior classes to interpret the import of *phrases* rather than of words. It is ability to render in other and more intelligible language the exact meaning of groups of words rather than of individual ones that really forms the genuine test of a child's knowledge of what he reads. But the interpretation of a phrase necessarily implies a knowledge of individual words. The relation of the teacher to the dictionary might be further illustrated. In the familiar lesson of "The fisherman and the turbot," there occurs the phrase; "the fisherman was firm." The meanings of "firm" given in the dictionary are "fixed," "compact," "strong," so that it is obvious that a child of nine will be long before he hits upon the precise interpretation of the words through this channel; hence the evident need of a teacher to guide and assist him. While the effort of one offering any of these meanings is to be commended, you must, while associating the idea of "firmness" with something which "will not yield" because of its hardness, or, as one would say, "will not give in," point out that the expression simply means that the fisherman "would not give in," or "would have his own way." Both meanings are alike simple and quite within the vocabulary and comprehension of the class. Thus you see that in such a case as this it is really the meaning of the whole statement and not of any particular word that is educationally valuable. Observe also that the answer is capable of being expressed in the form of a neat sentence. A half-hearted one-word utterance is intolerable and irritating. If you teach your pupils to give answers in sentence form when possible, they will soon evince no hesitancy or even difficulty in so doing. All can form the habit of making the attempt, though all may not be equally successful.

The Use of the Dictionary to be explained.

It is obvious, then, that at whatever stage the use of the dictionary is adopted, its function must in the first instance be carefully and practically explained. The scholars have to realize that, while from its very nature it must give all the meanings of the word or its synonyms, there has to be performed a special exercise of adaptation and discrimination, which can only be of value when the context is known and understood. By-and-by they should come to realize that a well-handled dictionary is really helpful to intelligence, and that it is very far from being an instrument of torture designed to rack and perplex both eye and brain wading amid the disjointed aridities of its pages.

Case illustrative of the Teacher's Function.

But there are occasions when even a dictionary will in a measure fail in its function, and where the timeous explanation of a teacher will be absolutely necessary. When such a phrase as "to raise the siege" is met with, no dictionary suitable for schools will afford any clue to the idea so expressed. The dictionary equivalents avail little in comparison with the instructor's lucid exposition of the group. Such expressions, which the teacher alone can adequately explain, are of very frequent occurrence. Peculiar and unique usages of words, which are often met with, demand an amount of explanation proportionate to the degree of their characteristics and difficulty. They have to be explained plainly and fully, until the idea implied is fully understood and the mind satisfied. After the sufficiency of the final interpretation has been established, couch what you have said in the form of a neat and succinct meaning which the pupils will intelligently grasp and remember. The nature of an answer should inform you to what extent the child understands what he says, and whether or not he is answering parrot-wise to satisfy your importunity. When you traverse the lesson in an explanatory way, be careful to note such words as the pupils can investigate for themselves from the fact that the dictionary meanings are accessible, intelligible, and sufficient. It is ever a serious mistake, no matter what the promptings may be, in this as in every other branch to do for the pupils what they may reasonably be expected to effect by a wholesome effort of their own.

An Exercise on Meanings.

It is a capital exercise, after making a list of words which are fully and clearly explained in the dictionary, to set the class to find the meanings and write them on slates. It has the effect of fostering self-reliance, and makes the impression, which costs so much trouble to assimilate, proportionately lasting. The task is also a test of their knowledge of what is read, because of the exercise of selection which it involves. You will often have to assist weak memories by writing the meanings on the board. Thus may the intellectual capacity be cultivated and encouragingly strengthened.

Length of a Meaning Lesson.

It is quite impossible to fix upon a stereotyped measure of printed matter sufficient for a meaning lesson. The nature of the subject and its vocabulary, your own ability as a teacher, the progress, proficiency, and status of the class, will all combine in determining the length of such an exercise. But generally it will be found that while the whole story of an ordinary lesson, such as obtains in a reading book, should in a measure be known before it is read for reading's sake, the length of the meaning task may be made to tally as near as possible with that of the reading one.

Meanings on Paper.

Young children may sometimes be asked to write on paper, as a home exercise, the meanings of a specified list of words. This is a much more serious task than performing it on slates, and you will do well to view it in this light. In the endeavour to record the meaning the quality of the writing is apt to be ignored, and the practice often has a natural tendency to jeopardize the writing at a time when the "hand" is only in process of formation. Be ever studious to set no task the performance of which will tend to the detriment of any other branch of the school curriculum.

THE SENIOR CLASSES.

What has been said regarding the training of intelligence in the junior and middle classes is equally applicable to the discipline which the senior pupils have to undergo. Certain points will in this case be emphasized where necessary. Of a superior order is the intellectual effort which the higher classes will have to put forth, because, while the exercise maintains generic characteristics, the meanings differ in degrees of difficulty according to the nature of the words and the complications and subtleties of their environments.

Preparation by the Teacher necessary.

At this stage it is specially necessary that the teacher should have given careful consideration to the lesson in private before attempting to adapt it to the intellect of the class. It would be very injudicious, for instance, to proceed to the interpretation of a portion of a Shakespearian play for the enlightenment of the pupils without a previous preparation of the subject. The teaching would be characterized by entanglement, confusion, and uncertainty, while it would be altogether abortive and ineffectual. A fairly satisfactory effort might be made to instruct a class studying a more elementary lesson without much antecedent consideration of the passage; but when the exercise embodies an amount of deeper thinking and reasoning, forehand preparation is absolutely necessary. The better you know the subject the more thoroughly and expeditiously will your pupils grasp it. It is a good rule at every stage to make your explanations simple, clear, concise, and pointed. As there should be no waste of time, so there should be no waste of words.

Meanings through Derivation.

The teaching of meanings through the derivation of the words must now be considered. This is a task by itself, demanding the highest intellectual effort. A knowledge of languages will make it both easier and more attractive. But even when the pupil is ignorant of Latin or Greek, the meaning explained through either of these will be both simplified and rationally impressed. Further, special courses of lessons might profitably be given upon the commoner prefixes and suffixes, the supply of which is practically limited, and by no means impossible or irksome to exhaust. It is desirable that this should be done as early as possible. Their various meanings and usages should be carefully explained and exemplified. Their frequent recurrence will render the mind readily retentive of them. An occasional half-hour should also be given to the study of roots of words, in order to supplement the pupils' vocabulary and knowledge. In this connection not only should the root be explained, but other words having cognate roots should be introduced; and as the exercise increases in attractiveness, the more should the pupils be encouraged to assist in the discovery and disintegration of such words. A child may be able to give the meaning of a word when he is unable to specify its source. Still, if he knows the meaning he will often experience little difficulty in arriving at the derivation, because even the English form of the word is very apt to suggest it. The method of teaching meaning through derivations is so simple that it is unnecessary to advert to it, further than to mention that after you have traced out the import of the words in this way, and have recapitulated the exercise, the pupils should be asked to copy the summarized results, as they have accumulated on the board in the course of your exposition. These should be carefully and methodically committed to paper in the first instance. The scholars should then carry them home, and, using them as stepping-stones, should study and commit to memory the ideas and information which it was your aim to supply. Before you proceed with the next lesson, you must prove that previous instruction has been well assimilated and remembered. But these remarks apply especially to the higher classes, and you will realize that it will hardly be judicious to think of entering upon a discussion of roots and derivations with very young children. You can only do so profitably when you have evidence that such a proceeding is within the capacity of the pupils, and consequently is likely to be beneficial to them. There is an amount of mystery and curiosity attaching to the exercise which tends to excite and sustain interest. This is the more satisfying when the tracing from the original up to the modern signification is well connected and explicit. But this method of investigation applies to individual words, of which it may very properly be designated the historical study.

When Dictionaries will be of special Value.

In proportion to the pupils' growth of vocabulary and intellect should be their intelligent use of the dictionary. To every child in the senior classes a good dictionary should be available. The cost is comparatively trifling. The saving it effects in time, and the discipline and culture which the handling of it involves, are very essential. Its instructive function as a means not only of ascertaining the meanings of words, but also their pronunciation, spelling, and even derivation, should be exemplified and explained. To an advanced pupil it is, in fact, a receptacle whence a fund of valuable information may be derived. But its use has its limits, and, as has been already pointed out, its information is often practically worthless, unless supplemented and determined by the skilful co-operation of the teacher. It is interesting to analyse the value of the task, when the teacher prescribes a certain number of words whose meanings the pupils are to bring to school next day on slips of paper or written in books. Such an exercise, of course, presupposes a dictionary accessible, or a convenient, willing, and intelligent parent. Without previous instruction, and a certain amount of subsequent exposition, the task can hardly be said to be educationally profitable, even although it does bespeak a certain amount of home work. To say the least of it, its educative value in any form is extremely doubtful. The haphazard meaning—the first one given—culled from the dictionary in the shortest possible time, and with slovenliness and precipitancy committed to paper, may or may not be explanatory of the word in its particular connection. But this does not concern the pupil. It is *a* meaning. That is sufficient for him. But as impressions depend for their strength upon observation and contemplation of the object, this haphazard and, in this instance, totally erroneous meaning, which he has been at some little pains to write on paper, is just as likely to be remembered as the correct one. Unless a stronger influence be brought to bear by the teacher to counteract it, the primary impression will be the more permanent of the two. In short, there may be said to have been practically a waste both of time and mental activity. The exercise is an aimless and perfunctory one, leading towards disappointment, consequent stagnation of energy, and possibly a retrogression of intellectual culture. Exclusive and daily dependence upon a dictionary is apt to become chronic, and as a consequence there may be engendered a tendency to depreciate, neglect, and set little store by your explanations. Before pupils can be expected to give accurate interpretations of individual words, they should have explained to them the general nature of the narrative. Some idea will thereby be conveyed of the import of the verse or passage in which the word occurs. By-and-by the context itself should be suggestive of the meaning. They will thus be trained to select the correct meaning when they find a variety of words put before them to choose from. Again, only in certain cases do the circumstances of a child admit of such a home task being anything like decently performed. When domestic surroundings are not conducive to its successful accomplishment, the meanings offered to the teacher are in all likelihood copied from a class-fellow's manuscript on the following day, and a spurious and surreptitious production handed in as a *bona fide* effort of the pupil. While you endeavour to get results on which you can place implicit reliance, it is most essential that all exercises demanding independent and intelligent thought should be performed under your own immediate supervision. Again, just

The Selection of Words.

as you cannot be too precise and explicit in your subsidiary explanations, so you cannot be too exhaustive in your selection of words to be studied. No word should be overlooked if you have the least misgiving about the pupils' knowledge of it. It is quite a mistake to imagine that the daily recurrence of the word in various connections will ultimately breed familiarity with its different meanings. It is very injudicious to leave to time alone to effect a satisfactory acquaintance with the full import of any word.

Preparation in the senior Classes.

It is natural that the intelligence lesson should precede the resultant elocutionary one. In the preparation of next day's reading lesson, the meanings of the words will, to a certain extent, have been traversed. This will be of great assistance and guidance to the pupils in their home preparation. This preliminary survey should be rehearsed and supplemented on the following day, after a night has intervened for the pupils to study and in a measure assimilate it. Power of observation and concomitant mental activity must be stimulated, while they are, at the same time, confined to a profitable channel. By skilful oral questioning you will soon be able to judge of the range of the child's vocabulary, and you will also be enabled to form an estimate of the capacity and equipment of his mind. It is important that, by the lucidity of your explanations, you should impress your scholars with your own ability and superior degree of knowledge. Through this also they should come to feel that while a dictionary is valuable in itself, the presence of a teacher to expound it is doubly so.

Specimen of Explanation of a Verse to an advanced Class.

As a specimen of the manner and spirit in which a passage of poetry might be explained, the following verse selected from Gray's "Elegy" will be serviceable,—

> "But Knowledge to their eyes her ample page,
> Rich with the spoils of Time, did ne'er unroll;
> Chill Penury repressed their noble rage,
> And froze the genial current of the soul."

The precise idea embraced in the lines is what you wish your pupils ultimately to understand. Such a verse must be taken by itself independently of the others in the piece, because it is sufficient and in itself appropriate as embodying a sentiment in keeping with the character of the whole poem, and because it does not in any way form an essential link in the narrative, although it is a possible and reasonable unit. It may be taken for granted that the meanings of the bigger words of the verse are known, the pupils having culled them from dictionaries as a foundation for the teacher's exposition. The method of explaining the passage might be somewhat as follows:—"Here the poet Gray is speaking of the dead people around him in the churchyard. 'Knowledge,' which means 'knowing about things,' is used in a curious way. It is said to be 'personified'—that is, *made a person*, or spoken of as a person (the suffix 'fied' means 'made'). What else is personified in the verse? Yes—Time and Penury. We can now explain the nature of the thought which the poet had in his mind when he wrote these lines. As time goes on without ceasing, the knowledge of things keeps steadily increasing. Hence people who live to-day are supposed to know more than those who lived long before them. But what is 'the ample page'? The word 'ample' means 'large,' or 'having room for all that is in it and more.' Knowledge has, as it were, a *roll* or *book* which contains all that is known. Time has lasted so long that much is in this book which these poor people would, no doubt, have been very glad to know. But to show off its contents, the roll must be *unrolled* or unfolded, or, to think of it as a book, it must be opened. In short, the idea, then, is that, although a great deal of knowledge of things has been accumulating in course of time or ages, these poor country people never knew anything about them. They lived and died ignorant, or, as we might say, illiterate. In the third line 'Penury' is spoken of as being 'chill.' 'Penury' you say means 'poverty,' a word you understand better. Well, 'poverty' has a cooling effect, or, to put it differently, 'when people are poor, as these were, they are 'dull' and 'low-spirited,' just as one would feel when he is cold. 'Repressed' means 'kept back,' 'pressed back' (*re*, back), 'kept down;' and 'rage' here may be taken for 'desire.' We can now grasp the effect of this poverty upon the people. It kept down any desire they may ever have had to rise above their humble lot to a higher position in the world; hence it is called 'a noble rage,' a desire to be praised or commended. But he says this state of poverty 'froze the genial current of the soul.' 'A current' is something that flows or moves on, and 'soul' may mean 'spirits,' 'life,' or 'mind.' 'Genial' stands for 'cheerful,' 'mirthful,' and 'happy.' Hence, 'Penury froze the genial current of the soul' might be interpreted to mean that, because of their poor estate, these people had no heart in them to be happy, however much the human mind may have yearned for a continuous flow of what tends to comfort."

The nature of the above explanation will show you that only pupils of considerable intellectual capacity are capable of following the reasoning. The weaker members of the class might be assisted by an ocular demonstration of the idea on the blackboard. Make squares or figures of some shape or other to represent *The people*, *Knowledge*, and *Time*, the three being arranged in this order. Then put the letters P, K, and T over them, and with the aid of the pointer explain the increase of Time and the corresponding accumulation of Knowledge which the second figure gets, as it were, from Time, but does not show or unfold to the people. In a similar way the precise idea contained in the remaining couplet might be graphically and interestingly impressed. This is a method of exposition by which the eye is made in an especial degree to aid the intellect, and which may be ingeniously applied to obscure passages of prose or poetry with telling effect. Where the poetic idea is tersely put, it is your function by repeated, it may be verbose, exposition to convey to the pupils the nature of the image conjured up in the mind of the

Explanation to be full.

poet. Don't spare words so long as they tend to enlightenment. You will thus have realized that the pupils may be expected to have made themselves familiar with the meanings of individual words. From this preparatory fund you are to extract what they know; and then, through the meanings which they offer, you will be enabled to lead them on by question, answer, and explanation to the precise application of each word, and thence to the full interpretation of the context. In some such way as this every word, line, and paragraph might profitably be dealt with. The number of times an explanation should be repeated will depend upon the uptake of the scholars and the degree of difficulty of the passage under consideration. When every member of the class gives oral evidence of satisfactory knowledge of the lines, take up a fresh passage, pursue the same style of investigation, and connect it if possible with the preceding and succeeding ideas of the poem. When children evince no knowledge beyond a dictionary acquaintance with individual words—that is to say, when they are ignorant of the import and sentiment of the piece as a whole—the instruction is lamentably weak. Imagine a pupil's knowledge of the above quotation summed up thus:—"'Knowledge' means 'what is known;' 'ample,' 'large;' 'page,' 'a side of a leaf;' 'rich,' 'wealthy;' 'spoils,' 'plunder;' 'rage,' 'wrath;' 'genial,' 'cheerful,'" etc. It is at once apparent how utterly worthless this sort of stuffing is as compared with an intelligent and comprehensive grasp of the verse. But apart from its educative value, the detailed exposition is much more agreeably and easily put before the class, and more likely to be profitably remembered, than a list of dry matter-of-fact and comparatively valueless synonyms. After traversing the lesson with the pupils in order to test their ability to interpret the lines, set them to paraphrase on slates either the ground covered in the day's lesson, or at least a suitable portion of it. The effect of this discipline will be an increase of eagerness, undivided attention to your explanation of the passage, and a strenuous and commendable effort to reproduce the meaning.

Paraphrase.

Provided the lesson be a suitable one, it will be useful to accustom the pupils to write the substance of it in their own words on slates or books. In such a case they have virtually to construct a sort of paraphrase of it. This task may be performed in almost any class in the school, although it is especially applicable to the more advanced ones. Occasionally it may take the place of a composition and writing exercise. Nor is the aid of the books always necessary. It will often be desirable that the books containing the original version be not accessible, and it should invariably be insisted upon that the *ipsissima verba* of the narrative be quoted as seldom as possible, and in fact only when absolutely necessary. In the upper classes the meaning expressed in poetry is much more difficult to grasp than that contained in a passage of prose. This is often owing to the peculiar arrangement, frequent misplacement, and even omission of words in the poem. Poets are allowed special privileges. Hence it follows that the latter class of lessons are much more perplexing to children, and consequently call for special preparation. The importance of a thorough training and grounding in intelligence cannot be overestimated. The object lessons which should obtain in the highest class as well as the lowest are designed to make the pupils thoughtful and intelligent.

Pupils should write the Substance of the Lesson.

There can be no doubt that a good grasp of the meaning and import of a sentence is an essential preliminary to the successful parsing and analysis of it. In fact, to attempt to teach grammar without first giving the learners an intelligent notion of the *meaning* of the sentence, is very much like trying to determine the composition of a cloud by simply looking at it. As the two branches are inseparable, success in teaching grammar will to a large extent depend upon that in cultivating intelligence. The best taught school is likely to be that in which the children are most intelligent. Spare no pains to foster the growth of the intellectual faculties of your scholars, for a nation's wealth is virtually the intelligence of its people.

Meaning an Aid to Grammar.

ON QUESTION AND ANSWER.

Since question and answer play an important part in analysing the import of what is said and written, it will be both interesting and instructive to advert to them at this point.

1. There is that form of answer in which the meaning of one word is substituted for an intelligent explanation of the whole phrase or clause. For instance, when the child is asked to give the meaning of "his fingers made an uncertain warbling," he answers "not sure," which is but an equivalent for "uncertain." He does so probably because the teacher has never exacted more than the meaning of "uncertain," and from habit it has become the only word about which he is concerned. This style of answering is exasperating, and should not be tolerated for a moment. He should have pointed out to him that some such answer as this is required: "The old man's fingers, plucking the strings, brought forth soft, sweet sounds, from which it was impossible to tell what he meant to play." Of course such a question as this, and it is a perfectly legitimate one, takes it for granted that the pupils are accustomed to answer in sentences.

A Word Answer for a Sentence.

2. There is a kind of question which tackles the wrong word in the sentence first. In the expression, "the hapless victim," it is quite a mistake to begin by asking for the meaning of "hapless." Just as in Latin it is essential that the case and gender of the noun should be determined before the adjective is made to agree with it, so here it is desirable that the pupil should be acquainted with the nature of the noun before he is questioned upon the meaning of the adjective which distinguishes it. This is the only natural and reasonable order of ascertaining the significance of the expression.

The wrong Word explained first.

3. Again, one may put good enough questions, but fall into the pernicious error of answering them for the pupil. This habit—for such it is—is very injurious as well as pernicious, and should be strenuously guarded against. Those who are the victims of the habit

The Teacher answers his own Questions.

become utterly unconscious of the evil it entails. Like the mocking-bird, the longer their voices are heard the more enthusiastic they become. Questions are put in quick succession and as promptly answered by the teacher, who in his unbounded delight credits the class with an amount of knowledge which they do not possess. By so doing he only throws dust in his own eyes, and at the same time injures the prospects of his pupils, who are not trained to self-reliance, and only know to repeat what the preceptor says. While you insist upon individual and independent answering, never for a moment become unconscious of yourself and your pupils, and forgetful of the function you are discharging as instructor. Realizing at all times your position, you will seldom or never fall into the error of imagining that your pupils are answering well and making satisfactory progress when their mouths are merely repeating your own thoughts and utterances, their hearts and intellects being very far from you.

An absurd Question.

4. The question which is the essence of absurdity, and whose answer is often in keeping with the question, you should studiously guard against. Itself ridiculous, it is provocative of the ludicrous. A few examples will illustrate it: "Why does the sea surround the land?" "What is a gentleman?" "Why was the way long and the wind cold in 'The Lay of the Last Minstrel'?" "What made the minstrel old?" He was an astute youngster, and let us hope an embryo philosopher, who when asked why Queen Mary was born at Linlithgow, "confidently and naïvely replied, 'Because her mother was there.'"

Leading Questions.

5. Equally unproductive of any good is the habit of putting *leading questions*, or such as readily suggest the answer. As examples of this kind the following may be quoted: "To what country was Queen Mary sent?" Here a country is suggested, and a pupil, knowing very little of the narrative, will possibly jump at "France," as one of the few countries mentioned in the reign. Again, instead of asking "Why was Mary sent to France?" the question takes the form of, "To be away from whom was Mary sent to France?"

A person is suggested, and the mind will not have to go far to seize upon King Henry of England as the probable cause of her removal. Yet another: instead of asking, "How did Mary escape from the castle?" the teacher asks, "What was lifted to allow Mary to escape?" Of course it is obvious that the key is suggested. The examination assumes a very ludicrous aspect when such a question is followed by, "What did Mary do when the door was opened?" These are specimens of very bad questions, for which the very modicum of historical reading provides accurate responses. Geography lends itself in an especial degree to questions of this kind. For instance, the question, "Name a mull in Wigtownshire," is at once suggestive of one of the few mulls in Scotland.

"Yes" or "No."

6. A question having for its answer either "Yes" or "No" is as a rule to be avoided. Here there is really so very little to choose between, so little probability of error, and so much chance of accuracy, that one who is utterly ignorant of the subject will as likely as not answer the question correctly. Take care, then, not to be misled by such questions and such answers.

Suggesting the Answer.

7. Again, there is the habit of putting the question and assisting the pupils to answer it by promptly uttering a syllable or two suggestive of the answer. The pupils then either finish the word, or graciously pronounce the whole of it. The teacher asks, "What house ruled after the Stuarts?" and on getting no response he suggests "Han," and now on the track the pupils promptly answer "Hanover." The performance is only rendered more exasperating when the final "over" of the word alone falls from their lips. The case may assume a serio-comic aspect when the teacher asks, "Where did Prince Charles defeat John Cope?" and on receiving no answer, he consoles himself by suggesting "Preston," while the scholars in turn simultaneously shout "pans." In like manner, when he asks them to name a headland in Sutherland, and finds it necessary to say "Cape," the pupils in an uncertain and subdued tone whisper "Wrath." Although this ridiculous mode of examining—if *examining* it may be called—is perhaps

most conspicuous in teaching history and geography, it is by no means unknown in testing intelligence.

The elliptical Question.

8. Somewhat akin to this last is the elliptical form of question. It may be practised with utility in young classes, where attention has to be sustained, and simultaneous answering is found to be beneficial; but in the senior ones it is of little practical value, and is certainly not to be encouraged. In the latter, interest in the subject-matter ought to be a sufficient stimulus for good questioning and direct and thoughtful answering.

Simultaneous Answering.

9. Again, there is the simultaneous answering of questions. This is very deceptive. A pupil who is well informed and active, and who knows the lesson thoroughly, can easily induce his class-fellows to shout out the correct answer, provided they are prompt to follow his leadership. This is productive of no good, and is altogether objectionable. Bid the pupils who know the answer raise hands, and ask one to make a statement. You will thus be enabled to gauge accurately the intelligence of the class, and will at the same time be able to lay your finger on its weak spot. The pupils themselves will also be convinced of their own responsibility, and will at once realize that it is individual effort and not conjoint answering that is solicited.

Repeating the Question.

10. Repetition of the same question is superfluous, and often injurious. If the question is put so that every child in the class can hear it distinctly, there is no excuse for repeating it over and over again. It may be urged that a single interrogation, succeeded by a decided interval of silence, has a depressing effect upon the class; but while some value may attach to this statement in certain circumstances, pupils accustomed to this mode of questioning will evince no lassitude or lack of interest in the lesson. At the same time it should not be forgotten that there are subjects and circumstances in which it is absolutely essential that the question should be couched in more ways than one. Still, care should always be taken that the answer should never be suggested by any form of the question. On the other hand, a

stereotyped style of questioning is somewhat apt to narrow the pupils' comprehension of the subject.

Repeating the Answer.

11. It may become a habit to repeat the correct answer every time. This is superfluous. It may be urged that the repetition of the last response gives a sort of cue or impetus to the next question, and thereby sustains in a sonorous way the thread of the narrative; but after all it is a pity to waste energy and words when the correct answer itself, once given, should form a sufficient starting-point and natural basis from which the succeeding question may adequately proceed.

CHAPTER VIII.

REPETITION.

THE EARLIER STAGES.

Its Effects.

THE committing to memory of a few well-selected pieces of poetry has a very beneficial effect upon a child's mind. In many ways the exercise is of educational value, but as a means of strengthening the mental faculties it is of special importance, while its refining influence makes it very desirable as a part of the school curriculum. The more children can learn by heart the better, so long as the selection is pure and in keeping with their intellectual growth. Very young children take the utmost pleasure in committing verses to memory, the more so if the morsel is tempting, and their sympathy lies with the nature of the subject. Repetition is closely allied to reading, so that the remarks made upon the latter apply in a great measure to the former. Not only have words to be recognized in the initial stages, but they have to be remembered in their sequence, and this adds a degree of difficulty to the task, the irksomeness of which is in inverse proportion to the mental capacity of the child.

Scientific Principles.

It will be interesting at this point to note the principles upon which the nature of the exercise depends. In the case of pupils committing to memory the multiplication table, proficiency was attained mainly through the association of sounds. The memory was strengthened by the exercise, and the associated sounds became impressed upon the individual, who could reproduce them spontaneously as occasion demanded. Lines are remembered in all likelihood in one or other of three distinct ways—(1) through their locality and sequence; (2) through the association of sounds resulting from a persistent repetition of the words; (3) through the meaning and ideas embodied in the words and lines themselves. But although any one of these may be sufficient to stimulate the memory, it is not denied that the result may be attained by a combination of any two of them, or even of all three together. Thus may a series of words become the property of the mind. There can be little doubt that very young children remember a great deal through the association of sounds, as well as through observation of the locality and sequence of the words. On the other hand, the older and more thoughtful they become, in less degree does the association of sounds influence the mind, which comes to remember the lines more readily and permanently through the grasp of their inherent and associated ideas. Children that are said to possess good "ears" readily remember and repeat musical sounds differing in pitch in a given sequence which constitutes a melody, and it is reasonable to suppose that [illegible] pupils will have less difficulty in committing words to memory in a particular order than those whose musical faculties are less strong. When the ear is weak the eye must come to its assistance. Through persistent observation of the words they may yet be learned by heart. So much for the scientific aspect of the subject, upon which every teacher should bestow a certain amount of consideration, with a view to laying his finger upon the necessities of individual cases. These preliminary remarks will now pave the way for dealing with repetition in its practical form.

Nature of the Poems.

It is mere cramming to make your pupils commit to memory pieces which they do not understand. The selection should always be in keeping with the mental capacity of the child. But, apart from their quality, the pieces should gradually increase in length, number, and difficulty as he grows older and the mind becomes stronger and more retentive. The exercise affords much pleasure as a rule, and this agreeable feeling should if possible be fostered and sustained. In the earliest stages the phraseology and ideas embodied in the lines should be such as very young children may reap real benefit from, especially in the way of exercising and strengthening the memory.

But your aid will be of great value. Explain the whole of the piece in as simple language as possible before setting them to commit it to memory. At first two lines at a time will be sufficient for a night's lesson. It will, however, happen that four lines will be more easily remembered than two. This will of course depend upon the idea conveyed by the lines, and in this case longer time should be allowed in which to commit them to memory. Everything of the nature of the nursery rhyme will be suitable for the infant-room and kindergarten school. The ballad verse may be introduced at the next stage.

The Preparation.

Although you have given the pupils an idea of the substance of the whole piece, after prescribing the lines to be repeated for next day's exercise, explain the meanings of the words, and ask the class to repeat the portion simultaneously after you, as many words being taken at a time as will form a convenient group. After this fashion go over the passage a few times, and then let it be committed to memory as a home task. So much for the preparation. Next day the pupils in succession will repeat the lines. Commend clear and careful enunciation; and for those who fail to perform the exercise mete out some suitable punishment, which the degree of negligence will determine. Once more question the class on the meaning of the lines, and proceed in the same way to prepare with them the passage you propose for the next lesson.

Cards with Verses useful.

It will be very desirable for various reasons that the pupils should possess books or boldly-printed cards containing the lines. But if they have not these, the portion forming a lesson may be written on the board, and committed to memory in the schoolroom instead of at home. The ordeal is, however, a noisy one, and for this reason alone is to be avoided if possible. The fact that the pupils make rapid progress through this method is its chief recommendation. Perhaps the size of the caligraphy or the novelty of the task helps to impress the words upon the tender and flexible minds.

THE MIDDLE AND LATER STAGES.

After the rudimentary stages have been surmounted, much yet requires to be done in the matter of teaching and testing, because the pieces continue to increase in difficulty with the advancement of the class. In the most advanced it is the accurate interpretation of the passage as a special discipline of the mind fully more than the remembrance of it that will demand particular attention. Something further might be said of the preparation and prescription of the lesson. It has been already pointed out that the quantity of lines recommended at any one time must not be stereotyped, nor, like the laws of the Medes and Persians, unalterable. Nor should their number be regulated by the status of the class, although this may to some extent determine the prescription in the case of the junior pupils, whose passages are less difficult to comprehend. As a rule it is the depth of the meaning conveyed—the quality, in fact, of the lines—that should particularly determine their quantity. Thus it may happen that in the highest class two or three lines may be sufficient for one lesson, when a lower one can easily master four or more. At first in any class the number of lines will be few, the quantity increasing as the pupils acquire aptitude in understanding and remembering them. Be careful at all times not to prescribe too much. What is learned should be done thoroughly, especially when the time is ample and the amount limited. In junior classes the lines given out should form a natural rhyme. This is an advantage to the pupil, because the completeness and tone of unity materially aid the memory. In any case he will probably not rest satisfied till his effort is clinched by the rhyming words. A ballad verse of four lines is very suitable for a lesson. Perhaps the easiest of all verses to commit to memory is the quatrain.

The Prescription of the Lesson.

Although repetition is not taken every day, when it is the lines studied should be such as embrace a complete idea, something worth grasping as a whole, and the entirety of which renders it the more easily understood and retained.

The piece having been selected, and the attention of the class secured, proceed to narrate the story of the poem, or explain in a general way its nature, using as plain language as possible, and endeavouring to excite interest in the task. The introduction of *pictures* will give point to the disquisition, and an effort should be made either to construct or procure them. After this the pupils should be in good heart to enter upon the work of learning the lines, which will now present a fascination for them which they did not at first anticipate from the title of the poem. Put questions to test the amount of attention bestowed upon the story and the extent of the pupils' acquaintance with it. Then proceed with the repetition proper. In the first place read the poem from end to end, the scholars following you either with or without books as you find it convenient. While you read, your effort should illustrate all the characteristics of good reading. By this introduction you will have familiarized them with both the nature and style of the piece. They should now realize what they have to do, and should feel encouraged and strengthened to proceed to the task of learning the words by heart. With a didactic or philosophical poem this preliminary survey will hardly be possible or even necessary. Such a piece will have to be dealt with in suitable portions, and that interest sustained by your comments upon a few lines as in the previous case resulted from a survey of the whole poem. Your assistance in the preparation of the task is most essential. Treat the prescribed exercise as if it were a sentence of ordinary prose. This is not quite so easy as it appears at first sight. In poetry, as a rule, the meaning is deeper, subtler, and more condensed, and consequently a special amount of repeated explanation in the simplest English will be necessary to make the exposition palatable to every child. When interpreting the meaning of the lines lay much stress upon such points as interest the class, and thereby lighten the irksomeness of the task and the strain upon memories yet tender and undeveloped.

Treatment of the Piece.

Didactic and Philosophical Poems.

Upon the explanation and reading should follow the simultaneous repetition of the lines in phrases in the junior classes, and also in the senior ones. Repetition is essentially an imitative art. The simultaneous exercise being over, repeat the whole lesson, throwing in with point and zest all the expression which the piece demands, so that the class may steadily get infected with your style and rendering of the passage. The frequency with which poetry lessons occur throughout the reading books will be favourable to the repetition exercise. The frequent expressive reading of such pieces will be beneficial in many ways, some of which have been already commented upon. After the preparation comes the examination. The pupils should be asked to repeat individually the whole of the prescribed portion. Then should follow a brief space of brisk and random questioning on meanings of words or phrases, and on such points as were specially referred to when the lesson was being taught. Although some extra labour is required, the more advanced classes should be subjected to much the same routine. In every class the committing of lines to memory forms a very suitable home exercise, except in very exceptional circumstances.

After a pupil repeats the lines, his class-fellows should be allowed an opportunity of criticising his effort. Corrections should deal with emphasis, pace, accentuation, and such features as characterize good reading. But observe that the fuller your own explanations, and the more careful and studied your pattern of the repetition, the less frequent will such criticisms become.

Criticism by the Class.

The pace will, of course, as in reading, be determined by the nature of the lines and the sentiment and meaning to be conveyed. As a rule, it should be rather slow. It is likely to be too fast. This defect is no doubt fostered by the pupils' extreme familiarity with the verses, but it is very often the result of carelessness, and a slovenly, perfunctory habit. When the pace is fast, expression is sacrificed. Progress in all the classes should be marked by a more finished and steadily-increasing elocutionary effort.

The correct Pace.

Some children, by reason of a certain mental attitude, will

Repetition overdone.

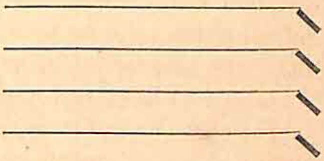
show a propensity to overdo the repetition. The correction of this easily acquired habit has to be effected with that judiciousness which will bring the effort within proper bounds without adding discouragement. The sincerity of the child must be kept in view. Gesticulating with the hands to give point to the utterance may only be permitted, if at all, when the elocution is as nearly perfect as possible.

SPECIAL TREATMENT OF MONOTONOUS REPETITION.

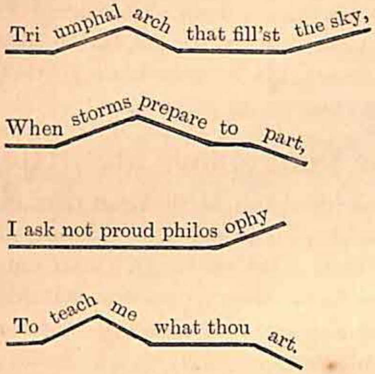
You will find that the main weakness in repetition is a tendency to monotony, just as there is in reading. Mannerisms are just about as bad. To both cases the same treatment is applicable. The *régime* has been already expounded under Reading. Of course all schemes are, in a measure, empirical, but perseverance in a particular groove tends to successful results. If the teacher shows apathy and indifference, the pupils take after him, and the combination invariably induces monotony, and consequent lack of interest. Where monotony is painfully apparent, the nature and extent of the defect may be graphically brought home to the class by depicting it on the board. Let the following quatrain be the lesson :—

" Triumphal arch that fill'st the sky,
When storms prepare to part,
I ask not proud philosophy
To teach me what thou art."

While the child repeats the lines in a purely sing-song, running monotone, only varying it by painfully dropping the last word or syllable, take the chalk and keep pace with him from the commencement, so that the repetition of the verse in the form of lines will appear thus :—



The case may be rendered a degree more pointed by writing the words above the lines afterwards, and repeating them in this position precisely as the pupil did. After illustrating the defect in this way, which will afford much amusement to the class—it is so marvellously ridiculous—proceed to repeat them yourself as they ought to be done ; and while you do so, and while the voice rises and falls, run out a tracing of the inflections and modulations on the board. Your rendering might appear as annexed, and the words could be superscribed to still further impress the proper cadence. The difference between your own and the pupil's effort will be so marked, that if you fail to make the scholars good elocutionists all of a sudden, you will at least have shown them forcibly how defective their efforts are, and will have given them such a thorough and tangible idea of what form good repetition should assume, that they will be found making strenuous efforts, not only in the school but outside of it, to master the correct mode of expression. You will also see that this method affords ample scope for pointing out the agreement of the inflection of the voice with the sentiment implied in the lines. As a cure for very stubborn cases the method is worthy of a trial. In the hands of a careful and skilful teacher it is pretty certain to be effective. One may even extend the idea, and in this realistic manner depict each day's lesson on the board. Then, as the words are pointed to by the teacher, the scholars might repeat them again and again simultaneously, adapting the voice to the visible inflections of the lines. That done, the exercise might be exactly copied on slates, and in this form carried home and practised against the following day.


Tri umphal arch that fill'st the sky,
When storms prepare to part,
I ask not proud philos ophy
To teach me what thou art.

The Results to be derived from this Method.

The above discipline is not by any means to be confined to the junior classes, although its application in them will render it less necessary in the more advanced ones. The experiment may be attempted wherever monotony is manifested.

THE SELECTION OF POEMS.

In the selection of suitable poems you will be guided by the class of your pupils as well as by their intellectual capacities and surroundings. Endeavour to observe a gradual increase in difficulty. The narrative poem, simple yet beautiful, with its pointed moral, will be found very agreeable and well adapted to junior classes. Of this order are, "The Beggar Man," "The Village Blacksmith," "Ralph the Rover," etc., in each of which there are two well-defined pictures depicted in a healthy moral tone. For older children, that class to which "The Daisy" and "The Rainbow" belong, and of which almost every line forms an interesting and instructive lesson of itself, may be deemed suitable. Gray's "Elegy," and selections from Goldsmith, Shakespeare, or Tennyson, are of a yet higher order, and fall within the scope of the senior classes. A great deal will depend upon the pupils' ability and previous training, which should be continuous and not intermittent. In any case the piece should be designed for the development of a pure and lofty state of mind. The more elevated the sentiment of the passage the fuller and more careful will be your explanations, and from the pupils the greater effort of intellect may reasonably be expected.

Revising and Paraphrasing.

At the end of a certain number of lessons the lines should be revised, and *always* from the beginning of the poem. It is a very valuable and instructive exercise to ask the pupils, especially senior ones, to analyse, and even to parse, selections from poetry. Again, to insure that the meaning of the lines is understood, they might be set to paraphrase in a simple way the lesson for the day. This exercise may be begun very early; and while it is particularly beneficial, it guarantees individual effort, and is, as a rule, anything but harassing. The paraphrasing of a passage is always preferable to the quoting of synonyms for individual words. Sentence-making is cultivated. The sentences of the paraphrase should be short and concise, the grammar and spelling faultless if possible, and the meaning accurately sustained in words which, while simple, differ as much as possible from the original rendering, except where verbal changes are alike impossible and unnecessary.

A Knowledge of the whole Poem desirable.

Finally, when a piece is selected from a long poem, such as "The Lady of the Lake" or "The Deserted Village," the nature of the whole poem should be explained, and the parts which lead up to and succeed the lines chosen should be expounded, in order to facilitate and expedite the pupils' comprehension of the part set aside for special study. Some knowledge of the author, as well as of his life and works, might also be added. The greater the amount of intelligence of the subject the more perfect will be the recitation of the verses.

CHAPTER IX.

GEOGRAPHY.

INTRODUCTORY CONSIDERATIONS.

PERHAPS no subject in the whole of the school curriculum requires more methodical treatment than Geography, and yet it is probable that few receive less. By reason of its nature and peculiarities it has to be approached with caution. Objects have to be dealt with as well as facts; some of these can be seen and handled, but the mass of them cannot. The study has its origin in *observation*. Geography throughout is essentially an "eye subject." The memory will doubtless have to be vigorously exercised, and the juvenile mind kept operative, but the eye will have a paramount function to perform. It is through the sense of sight that the appearance of surrounding objects is made known to us, while through a combination of senses we increase our familiarity with the precise nature and quality of external phenomena. The study of geography is ultimately beset with difficulties, mainly arising from the fact that the real, the distant, the gigantic, and unseen are to be comprehended through the medium of the ideal, the symbolical, and the compressed. Think of it. You talk of the mighty flood of the Amazon, and try to conjure up in the child's imagination a stream of enormous proportions, yet possessing most of the characteristics peculiar to the burn winding past the school door. It is difficult for him to comprehend the magnitude of the mightiest of rivers, and you are powerless to enlighten him even with all your most studied word-painting. There is no immediate possibility of showing him the reality.

To begin the teaching of geography by bringing the class round a suspended map and referring to this mark as a river and that as a mountain, without any previous fundamental grounding on the relation of the real object to its symbol, is about as cruel and ridiculous a method as could well be conceived. In such a case the task becomes cramming with all its disgusting and unprofitable phases. It is one thing to point to the large current of water flowing through the valley and say, "That is a river," but quite another to point to a wavy black line on a sheet of paper and add, "This is the same river." The former statement is unhesitatingly accepted, because the running water has been to the child a life-long reality; the latter makes him assume either the stare or the smile of incredulity. A thoughtful scholar after a struggle may connect the two with a fair measure of success, but to most such observations are as essentially different from one another as the shining crystal stream is from the wavy black line. Persistence in the assertion without explanation may banish perplexity and create belief, but it will never engender perspicuity. The hungry eyes that dilate for food must have something palatable placed before them. You will do well, then, to realize the absurdity of such a mode of procedure. There is wanting an educational link, an intellectual item or process, which it is your special function to supply. Without it all is dire confusion, a groping in chaos, in the child's mind, and intelligent progress is impossible. In a word, you have, at a very early stage, *to explain the relation between the real object and its representation.* Then will the pupils be able to grasp with the mind's eye in good faith the precise nature and appearance of other phenomena to which allusion is made. With this steadily-increasing intellectual power, the child will look upon geography as a reality, and not as an empty and disagreeable sound, a task without a meaning.

Preliminary discipline.

As a preliminary discipline, questions might be put to test the pupils' knowledge of things in general, and to find out the amount of observation they have hitherto bestowed upon their own environments in particular

In this way you will be able to gauge the soundness of the knowledge and the capacity of each individual, and to put such ideas before the whole class as will bring them up to a uniform geographical level, whence they will be able to proceed *pari passu*. It is absolutely necessary to know what is known before you can get the class to start fair.

Just as the surroundings of children differ, so will their grasp of the physical appearance of nature. For instance, those living in the country will be more familiar with the aspect of the mountain and loch than those brought up in the town. The latter, on the other hand, will probably know more about the sea than the former. In any case it will be best to begin to speak of things with which all may be expected to be familiar, and which fall within the range of common observation. At this stage it is the *characterizing* of the objects rather than the localizing of them that must receive attention. Discourse upon the appearance of a well-known hill, the nature of the river, and the shape of the loch in the neighbourhood; and when the class has thus got a grasp of the subject-matter forming the basis of geography, introduce them to the interesting and instructive study of a plan, as a central pivot from which the wider and more scientific treatment of the subject may radiate.

THE TEACHING OF SIMPLE PLAN DRAWING.

The first Lesson.

At the earliest stage the plan in its simplest and most obvious form will have to be explained, with a view to arriving at an intelligent grasp of the map, which is virtually a plan of a country. As it is desirable that the objects should, in the first place, be accessible and handy to the children, a special set of apparatus might be provided. Have beside you a board about two feet square, painted black, and having delicate white lines ruled at right angles to each other, and about three inches apart. Its general appearance should be somewhat like that of a chess-board. In addition to it get a few pieces of wood, consisting of a two-inch cube, an oblong slip or two, a conical bit, and some corks. These should have sharp points attached to them,

The small Board.

so that they may be fastened to the board with ease, and in any position. Allow the pupils to handle the board, and measure the distances of the lines from one another; then when they are perfectly familiar with it, lay it flat before them, and attach in any order the objects above named. Now raise it on its edge, that all may have a bird's-eye view of its surface. Point to the positions of the various attachments, and then transport the whole arrangement to the blackboard, which should have been cleaned and prepared for its reception. Lay the small board on the face of it, and run the chalk round its edges to fix its size. Now remove the board, and again set it on its side in full view of the class, and proceed to draw in their precise spots and spaces the outlines of the various objects exhibited on the small board. The ruling on the blackboard will, of course, correspond with that of the model. This done, run the chalk round the objects themselves, then remove them, and call attention to the similarity of the two drawings. After you have got thus far, take a pointer and interpret the lines to the pupils. Refer to the size and shape of the drawing, and the positions of the figures, thus representing the model which appears tilted on its edge. Point out that the shapes drawn are exactly those which are presented to the eye by the things themselves. Conclude by telling the class that you have now made what is called *a plan* of the small board and its figures. Throughout the lesson it is quiet, methodical progression rather than voluble explanation that sustains the attention of the class, and enables them to follow you.

The second Lesson.

At the next lesson rearrange the objects, and proceed on similar lines to make another plan. Although you show by measurements how the exact positions of the pieces are obtained, it is not necessary to be too fastidious about distances at this stage. Your aim is chiefly to get the pupils to understand the relation which the real and tangible bears to its representation in point of position, and magnitude in the sense of area. As yet it will be sufficient if they see how the exact positions and sizes are obtained, without being exercised in finding them. They are now in a measure prepared to copy or imitate what has just been sketched on the board. Draw it first yourself, in a miniature form on a slate, which might be passed round the class, that the nature of the work may assert itself. Then bid the pupils copy for themselves the blackboard plan. They will make wonderful attempts, and will evince much pleasure and interest in the exercise.

The Pupils themselves do the Work.

When this sort of task has been executed a few times, the results perhaps proving more intelligent than accurate, readjust the pieces on the small board, and set the pupils to make a plan of it for themselves, without the aid of your intermediate sketch. In order that they may depict the real objects, the board should be set on its edge that all may clearly see its surface. This will lead up to operations on a more gigantic yet perfectly comprehensible scale. After this rudimentary discipline, intended to illustrate and impress the lineal localizing of objects, tell the class that you are now about to make a plan of the school-room, and that they are to think of the floor as being tilted on its edge like the small board. The desks, cupboards, and table would thus appear, as it were, sticking on its surface in their different shapes and positions. Previous training will enable the class to grasp the idea of a tilted floor. Open the lesson by spacing a long and a short side of the room, if it is oblong in shape. Make a note of the number of spaces in each, then proceed as follows:—"In the first place, I am going to draw the shape of the floor, with the walls round it. There are two long and two short walls. All point to a long one, to another long one, to a short one, and to another short one. Now I am to begin by drawing a long straight line on the board, to stand for the long wall in front of you. When I measured it I found that it was ten spaces long. I shall divide the line into ten bits. The two short walls come away from this long one, making corners like these. They are both of the same length. One of them has eight spaces in it, so I shall make each of them eight spaces long. And now I join the ends of them, getting the wall behind you, the other long wall.

The Plan of the Room.

These lines then stand for the walls, the space inside of them is the floor, and the whole is the shape of the room." Review the work at this point, to insure that every member of the class has a thorough grasp of the shape, and can point to the wall or corner which you indicate on the board. It may be useful at first to place a number in chalk on each wall, and a corresponding number on the line representing it. The grasp of the walls is the chief thing to lay stress upon at this time. The other objects can then be readily located and recognized. It will, in the next place, be interesting to mark where doors and windows occur in the walls, as well as the position of the fire-place. When you mark a window, and a pupil names it as such, bid the whole class point to the real object you have marked on the plan. After the facts connected with the walls have been exhausted, proceed to mark the positions and apparent shapes of the various articles of furniture. This will be interesting, and the identification of them doubly so. Maintain, as nearly as possible, correct proportions in the matter of distances and forms. Then take a pointer and rehearse the various parts of the sketch, and at the same time put testing questions to insure that every child has followed the delineation. The lesson reaches a very interesting point, and the discipline is most effective, when you challenge the pupils to come forward by turns to indicate their own positions in the class, as well as the situation of articles that may have been shifted or unmarked. This exercise ought never to be omitted. Its benefit is incalculable. It seems to make the pupil pull himself together, and exert his utmost power of observation and intellect, to master what appears a very simple task indeed; while, in reality, it is by no means so easy as it looks. The pupils will now copy the plan on slates; and when they can do this fairly well, remove the sketch, shift some of the most convenient articles, such as the table, chair, blackboard, and coal-scuttle, and let them try to draw the plan of the room on their slates. Be present while the work is being done, to aid and correct mistakes. These lessons should be followed by the drawing of the plan of the whole school, and finally of the school and playground. The latter you might have drawn on a large scale on the back of an old map, so that it may be handy for reference at any moment. Once you get the pupils into the groove of the subject, all will be pleasant and plain sailing. After they are thoroughly acquainted with this rudimentary plan, they will have little difficulty in understanding that by means of lines drawn on slates or paper, the relative positions of all kinds of objects, from houses up to mountains, can be similarly delineated.

THE CARDINAL POINTS.

The four cardinal points will form a very interesting and instructive lesson. It is necessary that they should be known early, because a knowledge of them will materially simplify and explain much that is to follow. Allusion will frequently be made to them, and the sooner the children are in a position to comprehend your phraseology the better. The primary knowledge of them is obtained through *observation.* When every member of the class before you is attentive, proceed as follows :—"As you come to school, you feel the wind much colder on some days than on others. You hear people say that the wind is cold, because it is coming from the north; at other times they say it is warm, because it blows from the south. Now I am to let you know what north and south mean. Those of you who rise early will have noticed that the sun always comes into sight on the same side of the country, and pretty nearly at the same place. You have seen it rise slowly, higher and higher, in the sky, till it seems to reach its highest point. Then it slowly comes down and down, till at last it goes out of sight altogether on the opposite side of the country, and almost in the same place from day to day. Then we say it is evening, and soon after it becomes dark. Well, people have things which let them know when the sun is highest. It is twelve o'clock in the day when it is highest. It is now twelve o'clock. Look at the sun just now. It is exactly above that little cairn on the top of the hill. That being so, we say that the little hillock is just south of where we are at this moment. It is south of the school. All of you stand facing the little cairn. You are looking south. Your backs are facing the opposite way. They are turned towards the north; so the opposite of south is north. Face the north. Your backs are now turned towards the south. You have all seen the railway, with its two iron rails. If men could lay a long straight rail across the country, passing through that cairn and the school, and stretching away beyond it, it would be said to lie north and south. Were a ball of lead at the end of a rope hung over the rail at twelve o'clock, its shadow would fall exactly upon the rail. Now such a line has got a name. Twelve o'clock is mid-day, or noon, so this line is called the *mid-day line*, or, in one word, the *meridian*, which means the same thing. All take slates and write this word as I have written it on the board. The meridian is the line which we say the sun is upon at twelve o'clock, and it lies north and south. [The definition is simple, and once it is understood it will be easily remembered. The materialistic exemplification will permanently impress the idea.] I now hang this rope with the lead at the end of it in the sunshine. Observe its shadow on the floor. [The class is supposed to be facing the north. Bid a pupil advance and run the chalk along the shadow.] This chalk mark lies north and south. One end points towards the cairn on the hill, the other the opposite way. Now notice what I do. I take this large sheet of paper [an old map back uppermost] and lay it flat upon the floor above the chalk mark. [Adjust it so that the medial line of the sheet will just coincide with the chalk one.] I next draw a line on the paper above the chalk one. It goes from end to end of the sheet. Let us now see where we are. Where are your faces looking? North. So the end of the sheet away from you is the north end of the line. I shall put N to fix this direction. The end of the sheet nearest you is the opposite of the north, so it will be south. I shall put S to mark it. But there are other directions besides these. I stand on the meridian mark with my face looking to the north. I now stretch out my arms till they are in a line with my shoulders. The forefinger of my right hand [move it to attract attention]

The Meridian.

Testing Exercise

is pointing to the east, or where the sun rises, and my left hand [move it] is pointing to the west, or where the sun sets at night. All point to the east, and to the west. I now stand on the line on the paper, and when I hold out my arms, as I have been showing you, you notice that a line drawn as I am pointing would lie east and west. I shall make such a line on the paper. It crosses the meridian one. This end of it points east, so I shall mark E beside it; and this points west, so I put W at the end of it. We have thus learned something about four directions, or points, as they are called." Recapitulate the lesson, then lift the sheet by the north end, and hang it against the wall. You have now taught intelligibly the four cardinal points, and fixed their positions on the map. It will be well to test the effect of your instruction by such an exercise as this:—"All point to the south—to the north—to the east—and to the west. Where am I pointing? When is the sun highest? Where does it set? What is a meridian? On this sheet of paper I move the pointer from top to bottom, in what direction is it going? From what point is it coming?" The remembrance of these points may be yet more thoroughly tested by using a blank sheet of paper instead of the marked one. Bid individual pupils come forward and move the pointer in specified directions. After several rehearsals of the lesson on different days, the utmost familiarity with these points will have been secured, and intelligent ideas of direction deeply rooted.

Additional Points.

The next progressive lesson on the same subject will deal with such points as north-east, south-east, north-west, and south-west. Again lay the sheet of paper in its original position on the floor, and prove realistically that, while the four points already explained are not sufficient to indicate all the directions, a point midway between north and east is naturally called north-east, being exactly between the two. Lay a long pointer across the paper, and explain that the other end of it points towards the south-west. In a similar way arrive at the points north-west and south-east. Such a lesson can be made very attractive. With a sound knowledge of these eight points, the pupils are well fortified to proceed to the study of them on the real maps with which they will soon have to deal. The foregoing lessons will have satisfied you that some fixed point had to be selected from which the others could be readily determined. Some may prefer to start with north instead of south, fixing it in presence of the class by means of a compass needle. Apart from the fact that the meridian thus obtained is the magnetic and not the geographical one, there is so great an amount of mystery attaching to this freak of a magnetized piece of steel, that the pupils' minds are thereby apt to be distracted from the real point at issue, and hence the exposition proceeding from the sun has been advocated as being the more natural and intelligible of the two.

The North as a Starting-Point.

The practical aspect of the subject must not, however, be overlooked. Abstract knowledge should be followed by concrete. From the very first train your pupils to think of a certain wood or house as being north or south of a particular hill, which, on the other hand, may be west of some other hill or town. Again, let them find out how their respective homes lie from the school. Ask them in what direction the wind is blowing. If it blows towards the north-east, where is it coming from? Call attention to the use of the rod on the school or church steeple, with its arms indicating the four primary directions. Lay your permanent plan of the school and playground on the floor, draw across it a red line indicating the meridian passing through the classroom, hang it on the wall, and drill the pupils in naming the directions of the various rooms from each other.

Concrete Knowledge.

Geography up to this point has been very much a study of directions and of locality of the most intimate and elementary kind. The pupil should be beginning to realize that he is really dealing with his surroundings, and instead of disheartening it will encourage him if you give him to understand that he has begun the study of the vast world in which he lives. The prospect before him can be painted in very agreeable colours.

In the hands of a skilful teacher, geography is one of the most fascinating and most educative of all subjects. It especially will make life beyond the schoolroom useful, pleasant, and instructive.

Summary.

What has been taught may now be summarized. The pupils are familiar with the plan of the school and its significance. They know the cardinal points, and are fully aware of the meaning of the red line on the floor taking the place of the original chalk one. This much they know. Keep steadily in mind, then, that you are aiming at bringing them up to a point when they will be able to interpret for themselves, and intelligently too, what Dr. Fitch has very aptly called "a coloured enigma"—a map. They see the walls littered with these sheets, which they daily hear designated maps. Besmeared with a variety of colours, they look decorative and attractive; but in themselves they are as yet the embodiment of mystery. It is your special function to bring them within the grasp of the juvenile intellect. After the plan of the school is known, you may tell the class that the maps around them are but plans of countries yet to be considered and comprehended.

PHYSICAL FEATURES ILLUSTRATED FROM A MODEL.

The Apparatus.

The next natural and progressive step will be the consideration of objects and phenomena which fall specially within the observation of most children. They vary in bulk rather than in diversity. Although actual surroundings will often determine the order in which these should be taken up, it will, as a rule, be convenient to commence with the mountain or hill, and from it, as a centre, to arrive at the other features of the country. The lesson can be made doubly attractive and effective, and will be materially shortened, if you are at pains to treat it from a materialistic point of view. As a preparation for it, provide yourself with a large, shallow, japanned tea-tray, capable of holding water to the depth of a quarter or a half inch. Still better is a large sheet of zinc with a circumscribing border an inch deep. Have also a quantity of soft wrought clay or putty, a little sand, and a few stones of various shapes and sizes. Further, there should be suspended on the wall, in full view of the class, that most instructive of school apparatus, the pictorial map of physical features. To the pupils this preparation will be exhilarating and interesting, and never will you find their minds more alert or susceptible of instruction than at this time. The appearance of these materials touches a chord that vibrates in every heart before you, while anything deviating from the usual routine of books and slates is specially attractive. There is in children a strong innate desire to imitate. It is fortunate that this is the case. Mark, for instance, the boy glorying in his tiny barrow—all engrossed with his spade, cart, horse, or plough. Look how eagerly and with what satisfaction he pushes the miniature implement through the sand, and realizes that he is making real furrows. He is in his element in the gutter, skilfully deflecting the muddy streamlet, which to him has all the characteristics and importance of a veritable mill-race. But the imagination of the girl is not less active, nor her inclinations less imitative or sincere. See her dressing, hugging, and lulling to sleep with the tenderest of motherly warblings and endearments the rude, unshapely sacklet of paste, springs, and sawdust. It is her sole care. The fervour of her child-nature is wholly concentrated upon this inanimate conglomeration as sincerely as ever a mother's was upon her only child. Handle it rudely, and she will cry; rend it in pieces, and her screams will satisfy you that her heart-strings are all but broken. These traits of child-nature you cannot overlook. You must observe, study, and realize them if you would teach naturally and effectively. But to return to the above preparations, you will find that they appeal to the disposition of every child. The soil is ripe for instruction. Bring a table in front of the class, and on it set the tray in such a position that every one can see it. Make the pupils think of some hill in the neighbourhood with which all are familiar. Refer to its rising high above the other land about it. Then tell them that with the mass of soft clay you are to make something like a hill. Place the clay in the tray at the edge next to you, and after shaping part of it into a sort of ridge, flatten out the rest towards the class, and while doing so explain that you have thus made something like the hills and the flat land at the foot of them. Now proceed to pour water into the tray till it is about a half inch deep. That done, allude to some picnic or excursion to the sea-side, when the ships were seen sailing on the great sheet of water, which tasted so unpleasantly salt. Then point out that you have before you something standing for hills, flat land, and the sea or water round the land. At this point certain things have to be noted. The sea is flat-looking, more so than any part of the land, and its surface is the lowest. Next to it comes the low-lying flat land, and highest of all are the hills. If you can, show a mass yet higher than a hill, and tell the pupils that it would be a mountain. Its high points (make a few) are called peaks, and they are generally covered with snow, for reasons which cannot well be explained just yet. To impress this, stick a few scraps of chalk in the top of the model. Then put questions to make sure that the pupils understand the distinction between a hill and a mountain, and that the hill is land rising very high above the sea, from which the height is measured. By pressing a wire through the clay you can show what is meant by the height of a mountain; but be careful to add that this is not the proper method of finding it. Write the names "hill," "mountain," and "sea" on the board, and continue the lesson. Make a depression in the side of the hills to represent a valley or glen. Bring to the pupils' recollection some glen which they may have seen; speak of the stream pouring through its lowest part, and tell them that if it were followed up and up amongst the hills, its beginning, or, as it is called, its source, would be found. All have seen a dam of some sort. The stream would, perhaps, be found to come from a very large dam in a hollow place up on the hills. When it is very big it is called a lake, not a dam or pond. A lake, then, is a very large sheet of water, and is generally found amongst hills. It contains fresh water, like the stream that flows from it. Now use the model to illustrate what you have explained, and supply additional information. Make a small indentation at the top of the valley, and pour a little water into it, till it is just full. Refer to its resemblance to such a lake as you have been speaking about, and explain that you are now going to add a little more water, while the pupils will observe what takes place. You might make a deep scratch with a piece of slate-pencil, so as to guide the water when it overflows and runs towards the surrounding water representing the sea. If you add a little colour to the liquid it will be more easily followed. When more water is put into the lake it overflows towards the valley. A small stream begins to trickle from it. It pursues its course down the valley. It goes fast, for the slope is steep. It bounds over a sharp height. It is making for the level ground below, where it moves very slowly. It is creeping towards the sea; and now it runs into it. The pupils will watch the gyrations and progress of this miniature river as eagerly and anxiously as ever a starving lion scanned the erratic behaviour of a well-fed goat from the precincts of his cheerless cage. The addition of a timeous drop of water will tend to promote the progress of the current. Indicate the points of resemblance between the real river and the model, and summarize the facts. The river comes from a lake, which is always so full of water that it overflows. It runs swiftly when the slope is steep, and slowly when the land is level. It goes to the sea. Where it begins is called its *source*, where it enters the sea is its *mouth*. When it is small it is called a stream, when large a river. Rushing over a steep rock it forms a waterfall. The river, continually running one way, hollows or scoops out for itself the place where the water lies. This is called its *bed*. After this add to your list of names "lake," "stream," "river," "waterfall," "bed," etc. The conception of these should now be so vivid in the pupils' minds that they will be able to accept and repeat definitions of them with gusto and intelligence. It is unnecessary to discourse further upon the river at this time. As it is the broad, outstanding characteristics of the lake and the river that you aim at impressing at first, reference to tributaries, right and left banks, comparative magnitudes, and drainage areas may for the present be omitted. Subsequently, at a special lesson, you may proceed to the elaboration of these details.

The Sea-coast.

At next lesson revise the preceding one, and take up the facts connected with the sea and the sea-side. Place the model as before in front of the class. Again refer to a recent trip to the sea-side, when the strip of sand and pebbles was observed stretching along the shore from the mouth of the river. Put a little sand on the coast of the model. The sea-side is called the *beach*, and when the sea-side round a country is referred to it is named the *coast*. Point to the appearance of the coast. It is crooked. Show a strip of land projecting seawards, and arrive at the term *peninsula*, which will not be difficult to remember when the idea is illustrated. Cut the neck of land which joins it to the mainland, thus allowing the water to flow through and form a *canal*. Its use as shortening a journey by sea will be readily understood. At the end of the peninsula fix a few small stones, and explain that its extremity may be rocky and steep as well as smooth and flat. Hence get the name *cape* or *head*, which may be defined as high land lying into the sea. It will be interesting to speak of the light-house perched high upon such a point, and its use. Again show a curved portion of the coast, and supply the name *bay* or *gulf*. This will lead up to the distinction between it and a *firth*. Scoop the clay to illustrate both features. The nature of an island may be easily shown. Place a flat stone in the water a little bit from the land, and add the name *island*, which will then be understood to apply to land or rock with water round it. Punch a hole in the clay amongst the stones at the headland of the model. The water rushes into it. Such a hollow is called a *cave*, and it is the water that washes out the rock, thus forming a cave. As each new term is arrived at add it to the list.

The pupils will thus have got a very graphic and realistic knowledge of the outstanding phenomena of land and water. At next lesson set the model on the table as before, reconstruct the different features, and challenge the children to name them individually. Then turn to the board with its list of names, and pointing to each in succession, bid them describe in their own language the objects you indicate. If the pupils show from their own descriptions of these features that they know exactly what they are speaking about, you need not be too particular at first about neatly-worded definitions, which will result from a more intelligent grasp of verbal expressions. A well-understood, elaborate—it may be, roundabout—definition is infinitely preferable to one learned by rote. The repeating of a definition is very often a mere exercise of memory, and to the child conveys little suggestive of an epitomized, succinct description of the actual object. The pictorial representations suspended on the wall will keep the foregoing features permanently and comprehensively before the mind. They will be named correctly and with alacrity as fast as indicated. The pupils will recognize them as readily as they know a familiar face in the photograph placed before them. You have now led them within measurable distance of the map. You have conveyed to them an intelligent idea of the leading physical features themselves by means of the model and pointed reference to objects with which they are actually familiar. Knowledge has been supplemented by the introduction of new phenomena and names, and the whole has been made as interesting as possible by the seasonable introduction of a palatable amount of subsidiary details.

THE PLAN OF THE PHYSICAL FEATURES OF THE MODEL.

The next step will be the transference of the model in plan form to the board or paper, just as the school and playground were represented at a previous lesson. To enable you to do this effectively, draw a coloured line along the ridge of the hills, and one along the course of the river. Change the colour of the water representing the sea by the admixture of a little blue, to bring into sharp contrast the distinction between the land and the water. The model should be placed on the floor, and the pupils so arranged that they may have a good bird's-eye view of its contour. In large classes they will have to be taken in relays, because it is absolutely necessary that every step should be seen as clearly as possible. Before proceeding to draw, recall the fact that it was easy to make a plan of the school, because one could walk about and see and measure the different things connected with it. Then explain that you are now to draw a plan of the model, and that you have added the coloured lines to help the eye and simplify the task. After commenting upon the nature of the lines, begin by drawing the appearance of the coast in its original size. Use a piece of string for rough measurements, and speak of the curves and straight lines as you proceed. All should observe you measuring the parts, and then should at once fix their eyes upon your delineation of the contour. In fact, they should eagerly compare your drawing with the model itself. After you make the outline correct as to size and shape, pause, that the pupils may grasp precisely what you have done and criticise the work. Now put the island in its proper place opposite a certain part of the coast. Next insert a line to indicate the course of the hills, and another to mark the bed of the river. These will correspond with the coloured ones of the model. The lake will be represented by a circular line determining its size and shape. The plan will now be complete for all practical purposes. Clean the board and draw it again, enlisting the voluntary aid of the pupils, who might come forward to indicate the positions of the different objects. Finally, let each copy the plan of the model on his slate. Retain the model for a day or two, that the scholars may have leisure to study its details and compare it carefully with their own independent efforts. It will be interesting and instructive to remodel the whole after school hours, and set the pupils to draw it in its changed aspect. The third time this is done add a few lines indicative of the difference in length of the slope of the mountain-sides, and insert a few crooked ones to represent river-tributaries, which a word will now enable the pupils to understand. Another step and the map proper is reached. Point out that in this instance the plan has been made exactly the size of the model. Show that the size of the plan is immaterial, so long as the relative sizes and positions of the objects are maintained. To prove that although the size may vary the thing can yet be identified, show two pictures of the same house drawn on different scales. Make reference to the features which testify that it is precisely the same house that is delineated. Finally, compare the size of the elevation on the picture with that of the house itself, and then draw the plan of the last model in different sizes to illustrate the practicability of such a thing.

THE MAP EXPLAINED.

From the foregoing treatment of the subject, you may without difficulty proceed to explain the possibility of making a plan of a farm, or even a parish, by walking over it and taking note of the positions and sizes of the different features. The plan would be small, although the parish itself is large. After this, you might show a plan of the parish, if you have one, and examine its contents. Then explain that instead of calling it a plan of the parish, you might call it a map, which means the same thing. A map may now be defined as *a plan showing hills, rivers, etc., in their proper places.* The class will easily understand how a map of a country, or any part of the earth's surface, may be constructed for the enlightenment of those who have never visited foreign parts. Explain how these can be made by people walking over them and taking measurements, as in the case of the parish. Point to the maps hanging round the room, and refer to them as plans of different parts of the surface of the earth. They are simply pieces which have been traversed and transferred to sheets. The whole galaxy of maps will now begin to assume a new interest to the pupils. A vista hitherto wrapped in obscurity will have been suddenly unfolded, and for a little they will naturally turn their thoughts to the "coloured enigma," which they will become desirous of interpreting for themselves. You may now deal more specifically with such a map as Scotland, which may be described as the plan of the country in which the scholars live. Lay it flat on the floor, and arrange the class so that each one may get a bird's-eye view of its surface. Suspend some object over it to represent a balloon, and get the class to imagine a person viewing the country from a considerable altitude. The prospect would be analogous to that obtained by a bird; hence he would be said to get a bird's-eye view of it. But even if he could see the whole country, it would not appear exactly like the map. Its shape would be the same; but the mountains, lakes, and rivers would take the positions occupied by the black lines on the map. Take a pointer and trace the plan lines to which you refer. Run it round the country and describe its shape; point to the part tinted blue which is the sea, having the islands scattered over its surface. Then come inland, and trace the markings which indicate the positions of mountains with their various slopes. Similarly refer to the blue loch marks, and the wavy black lines representing the rivers. The county delineations will be interesting, and their colours will make them attractive. Describe them as parts into which the whole country has been divided by men; compare their different sizes, and point to the rivers which frequently form their boundaries. The islands form parts of the counties, and hence their colours correspond with those of the counties to which they belong. The counties are coloured on the plan to enable one to distinguish them readily and grasp their comparative sizes. It will be interesting to speak of the subdivision of counties into parishes, which, subdivided, form farms and crofts. This is bringing the map to the pupils' doors. Before concluding, show the names appearing alongside of the features on the map. This preliminary survey is most essential. It adds to the pupils' knowledge of their surroundings, and stimulates them to proceed with more zeal and interest to the study of a particular portion. They will be pleased to know that they are to look closely at an intimate and interesting part of what they have now formed an idea of as a whole. Often, unknown to you, will they be casting furtive glances at the county they are associated with, just to see how it fits and looks amongst the others surrounding it. Nor will their attention be wholly confined to one of the surrounding maps. By the foregoing lessons a lively and healthy spirit of inquisitiveness and desire of investigation will have been awakened. It should be your aim to direct this activity into a proper and profitable channel.

The Map of the County.

In approaching the study of the county, lay the map flat upon the floor, so that the pupils may have a good bird's-eye view of it. Take the pointer and proceed to establish the identity of environments with those depicted on the plan, and to unravel the mysteries of nature that lie beyond the horizon of the scholars' sphere of daily activity. Tackle the big and prominent features first. Point out the division of the county into parishes, which may be grouped around that in which the school is situated as a starting-point. The tints will isolate them. Then come straight to the centre of the pupils' world—the school. Show its position, and fix its surroundings on the plan, which you will identify with those known to the class. Trace the road passing the school, and follow it as it trends into other parishes, known to the pupils only by name. Dwell upon the familiar hill near the school. Alight upon the river, and keep by it as it winds and twists by well-known farms and woods till, in its seaward course, the reality becomes vividly fixed in the imagination. If possible, keep in its track till its mouth is reached, and put the pointer upon the exact spot on which the town is situated. Call attention to the bank on which the town appears, and explain that when a town is pointed to on the map the tip of the pointer must be placed upon the black dot, and not upon the name printed beside it. Towns are marked by dots, and the larger the mark the bigger the town is supposed to be. But streams and tributaries which flow into the river are steadily increasing in number as the river gets longer. The river must thus be growing in size as it draws nearer and nearer to the sea, and hence the black line which marks its course is made heavier towards the river mouth.

The Position of the Map.

After some such method a preliminary general survey of the map may be taken before it is dealt with in detail. When the pupils have come to realize that the proper position of the map is lying flat, there will be no harm in studying its minutiæ while it is suspended on the wall. This is the handiest and most accessible posture, and although it is undoubtedly unnatural, it is almost indispensable when large classes are being instructed.

Relief Maps.

The practical utility of relief maps in the schoolroom is restricted. They are generally too small to be serviceable, and too expensive to be sufficiently numerous. They are on the whole more adapted for individual study than for the teaching of a collective lesson. Still they must not be despised. In the hands of a skilful teacher even one small relief map may be of immense assistance and value. It can be made to serve the double purpose of interesting and instructing the class. Only after its function is realized should it be studied hanging on a wall. Its natural position is horizontal, not vertical.

The Map with a Bird's-eye View of the Land.

The map which gives a bird's-eye view of the land has been already referred to. It is in a measure a substitute for the relief one, and being very much cheaper it should form part of the geographical equipment of every school. A careful and methodical teacher can do a great deal with it. In importance it is second only to the pictorial map of physical and artificial features and phenomena, to which constant reference will have to be made in the earliest stages of the study.

Summary.

The preceding lessons should be frequently recapitulated with much earnestness and explicitness. They will supply a link which, like a ray of light bursting into the dark recesses of the pupils' minds, will have established a connection between the real with which they are familiar and its representation which forms but a minute item in the wide field thereby opened up for investigation. You will thus have laid a foundation in geographical study so tangible, real, and vivid that when you point to a map of a country the pupils will at once comprehend its meaning, will know what to expect, and will be in a position to proceed in an earnest, agreeable, and intelligent spirit to the interpretation and assimilation of its constituent parts and local characteristics. Geography has now developed into a reality, and the antecedent discipline on its terminology will be conducive to an intelligent study of the map.

THE INTRODUCTION AND EXPLANATION OF THE GLOBE.

It is almost necessary that some idea of the globe, of which the maps are isolated and enlarged parts, should at this time be imparted. Introduce a sizeable terrestrial globe, and proceed to explain that the earth on which we live is an enormous ball, but that it is not perfectly round like a boy's indiarubber ball, or even like the globe before the class. It is more orange-shaped. Show an orange, and call attention to its two opposite flattened parts. The earth is shaped like an immense orange. If you care, you may write "oblate spheroid" on the board, and ask the pupils to remember these words as accurately describing the earth's shape. At this point refer to the familiar appearance of the moon, which is also a round body. It seems moving in the heavens—in space—with nothing to keep it up. Tell them that, like the moon, the earth is also not only round, but it is moving through space, and that it is the sun that keeps it in position. Beyond this no explanation is advisable. A very realistic effect can be produced by dropping from the ceiling of the schoolroom a string to which, by means of a hook attached to the brass rhumb, the globe may be suspended about five feet from the floor. The point of suspension would be the north pole. You have now the globe in mid-air. Bid the pupils imagine themselves looking at the earth from some very distant place—say the moon. Point to the portions of its surface covered by land and water respectively. The sea part occupies three times that of the land. The land is not smooth like the surface of the globe. We know that there are hills and valleys on it. Let the pupils look narrowly at the land part, and help them to realize that the maps on the walls are but plans on a large scale of portions of the earth's surface. This will be very interesting, and it will not be difficult to get them to institute comparisons between the various countries in point of shape and area. This can only be satisfactorily done by referring to the globe. They already know that plans can be made of different sizes, so they will now thoroughly understand that a small country like Scotland or England may be represented on a very large map, while a large country like Russia, or a continent such as Africa, can be made to occupy a similar space when represented in map form. This will also enable them to see that the size of the country on a map is no criterion of its comparative area. It will be interesting to take a small cardboard model of a ship, and moving it slowly round the suspended globe, bring out the fact that the tips of its masts come first into sight, and last of all its hull. This is precisely what is observed in the case of a ship approaching the land. Show that as this can only happen when the ship is sailing on a curved surface, it is accepted as a proof of the earth's rotundity. You may even add that it would take a wire 25,000 miles in length to go round the earth, and were a hole made through its centre from side to side it would be 8,000 miles long; but these are figures which convey little idea to the young intellect beyond a vague sense of magnitude. Still they may be kept in mind, as they may yet come to be worth knowing. Before concluding the lesson make the globe revolve, to give some impression of a motion of the earth which will by-and-by have to be more fully considered. Recapitulate what you have taught, and lay special stress upon these points :—1. The earth is round, and is whirling in space. 2. Its surface is covered with land and water. 3. The land is divided into countries and the water into oceans. Again dwell upon the fact that all countries are not of the same size. It is difficult to get children convinced that Scotland is not so large as Europe, because they persistently gauge the size of the country by the superficial area of the map. An appeal to the map of the county hanging side by side with that of the country will tend to satisfy them that while the map may be of any size, the area it presents is after all really no criterion of the actual size of the country. Again be it urged that it is only by comparing the continental maps, and especially the globe representations, that the pupils will be satisfied as to their relative sizes. Hence the advantage of presenting a map containing the British Isles as one compact group. The child may now be said to have a still clearer grasp of the nature and function of the map, since he knows the relation in point of position and area which it bears to the land surface of the globe of which it forms a specific part.

Advanced Ideas.

But the idea of a globe suggests portions of its inhabited surface where objects must be, as it were, turned upside down. Thoughts will occur to intelligent children which will be apt to perplex them. How water, houses, and persons stick on to the lower side of the earth will be a mystery, and must remain so till they are able to understand the scientific principles of gravitation and attraction. In teaching, order must be observed. Every point of difficulty which crops up cannot be explained as it occurs. The above is one of them, depending for its solution upon the application of a totally different branch of the school curriculum. Hence allusion to the matter should meantime be avoided. It is not to be supposed that, because such difficulties are apt to arise, the pupils are to be debarred in the earliest stages from the study of the broad general outlines of the globe, which lays a solid foundation, and is almost a necessary introduction to the consideration of the map.

THE NATURE AND RELATION OF HILLS AND RIVERS.

An exceedingly attractive and instructive object lesson would deal fully with the nature of hills and rivers in relation to one another. The two are in a measure inseparable. Begin the lesson by referring to the hill or range of hills beside the school, or near enough to be quite familiar to the pupils in respect of appearance. Proceed somewhat as follows:—"We are going to speak of the hills—to see what like they are, and to find out what they do for the rivers which flow from them. You see the hill near the school. It is rounded on its sides and top, and it is covered all over with grass on which the sheep feed. It is not a very high hill. Look away beyond it. You see a row of very high hills. These are not rounded and smooth and covered with grass. Their sides are rocky and covered with large stones. The rocks form precipices, and the hills themselves are called mountains. Now you have all been up on the hill-side. You felt the wind blowing stronger and stronger as you went up, and how cold it grew the further up you climbed. It is so cold on the tops of the mountains that the snow takes a very long time to melt, and so we sometimes see snow on the tops when there is none in the valley below. In such a country as Switzerland, where the mountains called the Alps are very high, the snow never melts on the peaks, or summits, as they are sometimes called. Here is a picture of the Alps. You see how warm it looks down in the valley where the people are cutting the corn, and yet far up the mountains you see the white snow lying. Keep in mind, then, that the higher up you go the colder it becomes. The highest hill in Scotland is Ben Nevis; but snow is not always seen on the top of it, for it is not high enough. The hollows between hills are called valleys and glens. I am sure you have all been out on a misty day, and when coming to school you must have felt the fine powdery grains of water of the mist hitting your face till it was quite wet. The mist then is made up of very tiny drops, or, as they are called, particles of water. When the hot sun shone upon them, it dried them up, and the day grew bright and warm. Now you have all seen clouds in the air, and no doubt some of you think that they are made up of smoke, because they look so very like big heaps of smoke. But clouds are not smoke at all. Look at this picture. Here is a peak of the mountain buried in a cloud. If a person were on the top of that peak just now he would be thinking that it is very misty—so misty that he must not move lest he fall over some rock. From this we know, then, that clouds are made up of small particles of water floating about in heaps in the air. They are just mist, and are called clouds when they appear in the sky or on the tops of mountains. Now think of this. Because the hills and mountains are high and cold, clouds are very apt to gather and lie about them. But clouds form rain, and as there are so many clouds in these high places we must expect that a great deal of rain will fall there. This it does. What you must keep in mind, then, is that a great many more showers fall on mountain-tops than down on the flat country. But the low flat land, which is made up of deep earth, drinks up the rain-water, as this sponge sucks in the water which I drop upon it. I told you that there is not much loose earth on the mountains, and that rocks and stones are everywhere; so when rain falls upon them it cannot sink in, but it runs down their sides, just as the water does which I pour on the side of this sloping slate. It is so hard that it cannot take in the water, hence it runs down it. The rain that falls on the hills makes little streams, which run down their sides till they reach a hollow at the foot. They keep pouring into the hollow till it becomes full of water, which forms a lake or loch. When the hollow part is filled it runs over, in the shape of a stream, which finds its way down the valley. Other streams join it as it goes along, and soon it becomes a big river running towards the sea. This is just what I showed you on the model. But sometimes there is no hollow place in which the water may gather. In that case the small streams, pouring down the hill-sides, rush into one stream at the foot of the valley, and in this way make the beginning of a river. Sometimes the rain is found to have gone into deep cracks among the rocks, and to have come bubbling out somewhere. When this takes place there is said to be a spring, because it springs up, and a spring may happen to be the beginning of a river." The above will give you some idea of the style and natural order in which the points are to be taken up, that they may be really interesting, as well as the vocabulary you may use to make them simple and intelligible. You have here matter for two or three object lessons. There should be frequent recapitulations of each, and from first to last the pupils should be asked to suggest possible results as you proceed. They must virtually see the phenomena. Describe them so that they may imagine that they feel the mist particles on their faces, and see the man on the hill-top. The pictorial map of physical features will be of immense assistance, and a well-selected large picture of mountain ranges will add vividness and substantiality to your teaching. These should be at hand for timeous reference. A skilful teacher will be able to give a tone of realism to the lesson by sketching on the board mountains and the various physical features and phenomena as he proceeds. Ability to do this makes the matter yet more real because of the increased concentration of thought. A striking sketch might illustrate the mountain peaks—the ones covered with mist, the loch formed in the hollow, the river proceeding from the loch, and the supplementary streams or tributaries hastening to swell the main one, which has appropriated the lowest part of the valley. The sketch will be as nearly perfect as possible if you write neatly over the features such terms as "range," "peak," "hill," "precipice," "mist," "cloud," "loch," "spring," "river," "beginning," "tributary," "mouth," etc. The pupils should be exercised in helping you to name them, and thus in the identification and remembrance of them the eye will aid the intellect. But if you cannot make such a sketch, trace a large river on the board, and write the terms applicable to it where necessary. The pupils will delight in copying such a tracing, as well as in marking the names. Afterwards they will have no difficulty in understanding that the bigger and higher the mountain range the greater the area drained; and the further the river has to go before it reaches the sea the larger it becomes, owing to the increase in the accumulation of water. That the velocity of the stream is in proportion to the slope of its channel will likewise be apparent. It will also sustain interest in the subject if you can impart some idea of the appearance of such rivers as the Mississippi and Amazon. Any anecdote depending for its point upon the magnitude of the volume of moving water will be valuable. Supplementary to these lessons will be those on the uses of rivers and mountains, special reference being made to shelter, drainage, shipping, and even fishing. Such subjects can be made most interesting and instructive to young children, if they are treated naturally and graphically, and in a resolute and sympathetic spirit.

GENERAL REMARKS ON TEACHING AND THE MAP.

A few things may be said regarding the map and its uses as well as the teaching of geography in general. To the pupils the map is no longer a coloured conundrum. Once they understand what a map means, they can do a very great deal independently, particularly in the way of familiarizing themselves with the aspect and arrangement of the physical features of the country. But for all that, the aid of the teacher is just as essential now as before, to direct the course of instruction and guide the pupil into the best and speediest groove for acquiring a knowledge of his surroundings. What information he acquires for himself the teacher has to supplement. He has also to stimulate him in his endeavour to gather facts and grasp details regarding the past and present geographical condition, physical as well as political, of the world of which he may yet be an active and important member.

The Function of the Book.

It is impossible to denounce too strongly that system of teaching which solely confines the pupils' attention to the pages of a geography text-book. It is one of the most unjust and cruel disciplines to which a child's mind can be subjected. The memory is strained, overtaxed, and consequently weakened. It is loaded with endless names of natural features, and lists of towns, the remembrance of which as they appear on the leaves of the text-book is utterly worthless, and of no permanent or practical value. The teacher may be sincere in his prescription, and the pupil thoroughly in earnest, but, as a means to secure a profitable end, such a use of the text-book is in the highest degree reprehensible. In itself and its proper function the book is a distinctly valuable and very essential compendium. It is written to serve a specific purpose. It is never intended to be a substitute for the map, to which its function is wholly subservient. It aims at being the pupil's guide to the map, presenting to him in a summarized and succinct form the points most deserving of notice, which he will be enabled intelligently to remember by the subsequent consideration of them on the map. The book supplies, in addition to this, information which, from its very nature, cannot be conveniently recorded on a plan of the country. Be careful, then, not to overestimate the function and value of the text-book, and to underestimate the proper use of the map.

The study is one in which careful observation is almost everything. That, backed by a good memory, makes progress in the acquirement of knowledge sure and agreeable. Both observation and memory are necessary. All cannot remember things with equal facility and certainty, but all may be induced to observe. When your class is before the map, see to it that every eye is fixed upon it at the proper time and spot, and depend upon it that in this branch, as in others, the depth and permanency of the impression made upon the mind will be in exact proportion to the child's power of observation, concentration of thought, and elasticity of memory. You know that faculties which at first are weak or sluggish may be strengthened, so be not discouraged by slow progress while there is evidence of honest, concentrated effort. Bear in mind that it is the child's familiarity with what he sees in reality in nature around him or in miniature model form in the schoolroom that enables him to grasp intelligently foreign features and phenomena, and that it is by the teacher's description of them that their vividness and reality can be forcibly brought home to his imagination.

Observation necessary.

As an introductory step the study of the county in which the school is situated has been advocated. It has the great advantage of presenting to the eye physical features and objects with which the pupils are in a measure acquainted, thereby stimulating and increasing interest in the study. Geographical knowledge is in an especial degree cumulative. Successive increments are digested as the child speeds from fields known to lands unknown. But if the foregoing system of initiatory training is adhered to, you will find that the class, while making rapid progress, will comprehend and enjoy fully as much the geography of their own country as that of the county in which they live. There is a sense in which the study is synthetical in the earlier stages; afterwards it becomes more analytical. In any case the pupils should have an idea of the characteristics of the whole country of which the county to be specially considered forms a part, just as a comparative survey of the areas of some other countries with that of their

Map of a County.

own will be of special benefit before dealing with the details of the latter. The comparison ought to be effected on the globe or on a suitable chart of the world. From this germ should spring their notions of the magnitude of the physical features of foreign lands, and the insignificance of those with which they are familiar in their own circumscribed environments.

Survey of the Country.

It will therefore be desirable that the class should have a general grasp of the whole country to begin with. Put the map in a good position, and with a pointer indicate broadly, *without naming them*, the parts which possess the highest and most pronounced mountain ranges and the largest rivers, special peculiarities of coast-line, and the situation of the more populous centres. In this way go over the outline and contour of the country. Then narrow your instruction by proceeding to point out and name the masses of water, if any, that bound it. After that the counties should be taken up and their names and relative positions remembered before the minutiæ and history attaching to each are explained.

Schoolroom Maps.

The maps themselves ought to be good—that is, clearly printed, with bold outlines, which impress the outstanding characteristics upon the mind. They should not be loaded with names to the obliteration of the physical features. They ought to be sufficiently tinted to indicate forcibly but not obtrusively the political divisions or counties, and in every school the supply should be as complete as possible. Maps that are unvarnished can be better seen by a large class; but as a *per contra* they are more likely to be damaged by dusting and the tip of the pointer, and are on the whole by no means so durable as the glazed ones.

THE ATLAS.

Before proceeding to deal with the physical features of the country in detail, it will be seasonable to say something of the atlas. The utmost assistance will accrue to both teacher and taught if the pupils are provided with atlases as soon as they understand the meaning and use of the map. These can be had at a very cheap rate and of marvellous quality at the price, and they will save so much time that it will be a pity to attempt to teach geography without them. Those in which the outlines are most distinct, and the leading names most clearly printed, should be selected. The facts noted should be very much those of the pupil's text-book, to obviate that disappointment which naturally follows when, after a patient and prolonged search, he is unable to discover what he seeks, because it is not marked. The maps in the atlas should correspond as nearly as possible with those of the schoolroom in point of outlines and recorded details. Hence the transition from the one to the other will not be fraught with much mental disturbance arising from the novelty of the map. When opportunity occurs, instead of disbursing the money granted for prizes in the purchase of such literature as "The Dairyman's Daughter," "Robinson Crusoe," or "Masterman Ready," etc., each good enough in itself, no doubt, and often dear to the child's heart, you might spend it in the purchase of serviceable atlases, which the pupils will prize equally much, and the doting parent be proud to recognize. Gift books are too often laid on the shelf, which is not unfrequently the best place for them ; but in all probability the atlas will know no rest. While it will be very acceptable to the child, its practical utility will serve him in good stead. Surely it is just as well that he should know something of the wide world he lives in as the story of a good girl, the escapades of a fictitious soliloquiser, or the high jinks of a precocious boy. The atlas will be to him the book he needs, a thing of beauty, a perfect mine of intellectual wealth, and a source of never-failing interest and joy. He can carry it about with him, peruse it at his leisure either at home or in the school, compare it with the big map on the wall, and prepare his lesson calmly and intelligently at his own fireside. He will be proud of his ability to interpret for himself what the teacher takes so much pains to expound to his class-fellows, to whom boon nature may have been sparing of her gifts. Individual and independent study will thus be fostered, and when map-drawing is undertaken the real profit derived from the perusal and presence of this *vade mecum* will be pleasantly realized.

METHOD OF TEACHING THE GEOGRAPHY OF A COUNTRY.

Arrangement of the Class.

In dealing with the particulars of a special country, after the general survey of its boundaries and most conspicuous characteristics, there is a natural order which you will do well to observe. The counties first demand attention, with a view to the subsequent consideration of their respective details. Suspend the map in a convenient get-at-able position in front of the class, which, if small, may be drawn up in semicircular form around it, or, if large, may be taught in sections. It is very important that the pupils should *see* the printed names. Any position either of map or class which secures this advantage to the greatest number is to be adopted. Test the range of vision of the more distant scholars by challenging them individually to spell the names to which you point. In this way you may readily ascertain that every one can easily read the names. Failure to see the name implies a special effort of memory to counterbalance a lack of observation. Time is thus wasted, and the impression is less permanent.

Counties.

At the first lesson the number of counties pointed out will be comparatively few, because it is only as the pupil pursues the study that his memory becomes more retentive of names and localities and his intellect more acute. The side of the map at which you stand is perhaps immaterial, but the pointing is very important. For counties and countries it should be of a curvilinear form, because the boundary has to be smartly and broadly defined by the tip of the pointer. Repeat the names a few times, taking the counties in a fixed order, and maintaining the same style of pointing, the class meantime merely listening and observing. After revising the list three or four times the pupils may say the names after you, and at the final round let them repeat them simultaneously as you silently indicate the counties. In some such way as this both names and localities are impressed. But the memory may be quickened by a few cursory remarks on the county you are naming. In dealing with Scotland, for instance, you might say that Caithness is flat and bare, having no trees and few hills. Sutherland might be described as stretching from sea to sea, and as being very mountainous; while Cromarty appears in bits or "crumbs," as the name suggests. These parts are scattered throughout the adjoining county—Ross. Inverness is the biggest county in Scotland. Any passing remark that creates interest in the locality and sustains attention will be not only instructive but helpful to the memory. To test the pupils' knowledge of the lesson you may ask them to come forward individually to indicate the counties which you name. In a very large class this takes too much time, and is not practicable. In such a case point to the counties yourself, and let the pupils in succession name them. The latter ordeal is not nearly so educative as the former, because it lacks that amount of healthy disgrace which attaches to failure in the effort, and which the former discipline entails to the keenest extent. Still it is perhaps about the most that can be done in a very large class. Vary the order of naming the counties each time. When this performance has been satisfactorily accomplished, remove the map and substitute a *blank or skeleton* one, having outlines or framework, but no names. If you have not such a map, sketch a rough one on the board, indicate the counties by a few lines, and repeat the same testing exercise as before. When the pupils are aware that this is to be the final task they will be stimulated to increased attention and more concentrated thought and energy. The ordeal is intended to test their knowledge of what you have been teaching, to foster a wholesome amount of interest in the work, to fix both the locality and name in the mind, and to remove that aid which a child derives when he proceeds leisurely to ferret out a particular county by a close scrutiny of the names. The proper handling of the pointer has to be taught. It should be wielded precisely as the teacher does it, the map being touched lightly if at all, so that the risk of its surface being damaged by a careless or forward application of the tip may be obviated.

Open next lesson on the same topic by a rehearsal of that of the preceding day. Then proceed to indicate a number of new counties sufficient for a lesson, and in keeping with the time at your disposal.

A Method to be avoided.

It is slow work and not too profitable to stand at the end of the class, to touch and name the counties once, and then spend twenty minutes in experimenting upon the unenlightened intellects of the pupils by asking them in succession to point to the counties which you suggest. In this case you are simply trying to find out what they know by examining them on what they don't know. You are suggesting possible information, and delaying till the pupils assimilate it without helping them in the effort. You are wasting precious time, waiting till knowledge accumulates spontaneously, till familiarity with places is acquired through sheer dint of time, habit, persistent scrutiny, and uncongenial examination. To be sure, so far as the memory is concerned, the same result will ultimately be arrived at, but hardly on true educational principles. You should be studious to adopt such methods as will enable you to proceed intelligently to teach the lesson in the least possible time and with the greatest possible effect. The teacher has his part to play as well as the pupil. The pointed and well-directed instruction by the former and the closest observation by the latter are most essential to insure success. But although you perform the descriptive preliminary indication of the counties yourself, the subsequent drill in place-locating may be satisfactorily conducted by a smart pupil under your immediate supervision. It is very largely mechanical. But the testing and examining of the pupils is the teacher's undisputed function. Some children, after having the places pointed out a few times, readily remember them. Encourage observation by allowing those who show a thorough knowledge of the blank map to retire to other work, while those found wanting may be asked to prolong their study of the printed map. The lesson on the counties may be wound up by putting a few such oral questions as these by way of a final test :—What county lies south of a particular county? What counties touch or border upon another county? What county has no sea-coast? Name the most northerly

Testing.

county in the country. What is the largest county? What is the smallest? etc. This exercise may be conducted first with the map before the class, then with the blank map alone exhibited, and finally without the presence of either map. Now that the counties have been mastered, the features contained in them may be considered.

Islands. As the islands form appendages of the counties, it will be natural to take them up next. Before dealing with individual islands take a general survey of them as a whole. Refer to parts where they are most numerous, as well as to places where they are conspicuous by their absence; then look at them in detail. Point out that the tint of the island corresponds with that of the county to which it belongs, and to which it is, as a rule, adjacent. When a county is spoken of its islands are also included. Just as you clothed the counties by discoursing upon them, so you must clothe the islands. As you indicate each by a curvilinear sweep refer to peculiarities in its shape, size, general appearance, incident, or history. Sometimes it may be well to deal with groups; but generally it will be best to view the islands as fractional parts of their respective counties. Probably the book gives in the driest manner possible those belonging to each county, and the position of each with regard to the county. This in itself is useful information no doubt, and if intelligently grasped through the map so much the better; but the committing to memory of the facts and names without any local mental picture is utterly worthless. Let the information be full and precise by all means, but let it be grasped on the lines of practical utility and substantiality. When pointing, the pupil should freely describe the outline of the island at the time he names it. In this way its general appearance and *locus*, as well as its name, are impressed upon the mind. As observation plays such an important part in all geographical training, and as familiarity with the map's contents largely depends upon the frequency with which the eye roams over its surface, you will find it a profitable exercise at a later stage to write a list of names on the board and set the pupils to find the objects by a close scrutiny of the map. This localizing of names, as it were, any child may do. The habit of careful and sustained observation will thus be cultivated, and if the list be but an extract from the manual, both map and book will have been requisitioned to perform their proper functions. When the pupils have atlases this task is very suitable for private study. In learning geography there is much that a child can do for himself—much, in fact, of a self-teachable nature. The order of teaching and testing is the same as before. Facts gathered from the real map ought to be subsequently rehearsed on the blank one, and every new lesson should be introduced by a review of the preceding one, in order that the one may, as it were, glide naturally into the other. The map being removed, the following style of questions might be asked:—Name islands in a certain firth or bay. What islands form a county? What islands belong to a certain county? What is peculiar about such and such an island? Where does this island lie from that one? etc. Such questions imply a combined knowledge of locality, possession, and incident, which should be constantly kept in view.

Sea Openings.

The next in natural order to be studied will be the openings of the sea, whether in the shape of firths, bays, lochs, river mouths, or gulfs. With these the child may be in a measure acquainted, from casual observation of them in previous surveys of the map. Now they must be made the subject of special study. For a lesson point to those on a side of the country, observing the same formula laid down in the case of the counties, and tracing the shape of the opening as you name it. If they can be considered in convenient local groups so much the better, and if they can be associated with fixed counties the task may be yet more methodically executed. As before, clothe the bald names by discoursing upon peculiarities of tides or local incidents worth knowing. The value of such colouring has been already indicated. When the pupil wields the pointer he should deal not with a single bay or loch, but should indicate and name all the openings in proximity to a particular county or country as the case may be. This gives him a more intelligent grasp of the subject as a whole than he can ever obtain from the handling of isolated facts. The close scrutiny of the contour will have made the pupils acquainted with the distinguishing characteristics of these inlets. A sea loch is narrow and long; a firth of a conical shape, its apex trending inland and forming the mouth of a river; while a bay or gulf is much larger and wider than either of the previous two. When you use the blank map point to the features, and let the pupils name and characterize them by turns. The subsequent oral questioning will test the knowledge of names, locality, and peculiarities, and the attention given to the incidental details by which you emphasized your instruction.

Headlands.

Refresh the memory by recalling the chief characteristics of capes and headlands. Tell the class that a variety of designations are applied to these features, due either to diversity of appearance or to linguistic influences. Such names as "cape," "head," "ness," "mull," and "butt" occur, one or other of which is applied to the same generic physical feature—namely, something projecting seawards. In arranging the lessons deal with those on clearly defined coasts. Beyond a description of the head itself, or a casual reference to its locality, there is very little that can be said that is really interesting to children. To impress the positions of the capes this method might be tried. Draw on the board a skeleton map of the coast, and while the pupils give the names in succession write them large and distinct *in situ*. The names being thus prominently printed or written may be very speedily and permanently remembered. It is presupposed that the blank map is tolerably well proportioned and the outline of the capes clearly defined. Without these qualities the method may be dangerous, and suggestive of exaggerated or even erroneous ideas. Complete the coast-line first, then put in the names. When testing the lesson wipe off the terms and bid the pupils either point to the capes or tell the ones you indicate.

After referring to straits and channels, which generally take their designations from the land or place adjoining them, you have in a way exhausted all that pertains to the ocean. A few revisal lessons on the topics taken promiscuously will be useful. Then the contents of the counties themselves may be studied.

Mountains.

Being numerous and varied, and so widely diffused, the hills and mountains will be found somewhat more perplexing, and consequently more difficult to grasp, than most other physical features. The subject is of such a nature that the study of it may be general or minute. In any case the mode of opening the lesson is a fixed one. A superficial survey of the country is first necessary, in order that the class may get a definite idea of its configuration. Refer to the general disposition of the leading ranges, without mentioning names. The country will consequently be characterized as hilly or the opposite. In speaking of Scotland show that the west side is weighted with mountains, while the Grampians form the chief and highest range. Wales, also on the west side of the country, is most mountainous, while England proper has nothing to boast of in the shape of mountains except the Cumberland hills. In Ireland the mountains lie round the coast, while the interior is inclined to be flat, thus making the country resemble a gigantic saucer. This will illustrate the manner in which the topic is to be introduced. Let the class grasp the broad features first, and then proceed to study them analytically. For lucidity in both teaching and learning divide the country into suitable portions, and take up the mountains in each division. In pointing move the pointer in the direction of the chain. A single touch will suffice to indicate a summit or isolated mountain. When the mountains in each division have been overtaken, revise them in more comprehensive groups. More stress should be laid upon ranges and groups than upon detached or insulated peaks. The blank map used alongside of the real one is of immense assistance in teaching. With the class take a pointed survey of the range on the map; then at once sweep the flat side of the chalk across the blank surface, indicating boldly the general direction of the chain. Make small crosses where the various summits occur, and finally write the names legibly over them. But your teaching must resolve itself into more than mere mountain naming and locating. Be prepared to make running comments as you proceed from group to group or summit to summit. It is only by this means that the task will become really interesting and essentially profitable. In dealing with Scotland, for instance, when the great Grampian range is pointed out, call attention to the presence of Ben Nevis, the highest mountain in Great Britain. Note at the same time that there is an observatory on the top of it; that it is beside the great Caledonian Canal, and in the largest county in Scotland. Convey some idea of its height—not from bare figures—but by comparing it with the altitude of the hill near the school. Draw an upright line on the board, and by cross marks indicate forcibly the relative height of each. Young children grasp a comparative idea better than the actual figures, especially when one item is a known feature. The peaks at the eastern end of the chain of which Ben Macdhui is the highest should also be commented upon. In England the peculiarity of such a hill as the Peak, and the general appearance of Wolds and Downs, will be worth noting. It may happen that the etymology of the names will sometimes help to impress them upon the mind. For example, Cairngorm will be "the blue hill," and Ben More "the big hill." Such devices as aid the memory must not be overlooked, so long as they conduce to the cultivation of intelligence and the accumulation of useful information, and are altogether productive of satisfactory results.

It is a good plan when you test the pupils' knowledge of the subject to bid each indicate, not a single summit, but all the hills and mountains in a particular county. The reason for this discipline is obvious. When a mountain is mentioned, not only will the name suggest its location in a certain place, but all the others in the same county will also present themselves to the mind. While a knowledge of the names and positions of the various mountains may be obtained through careful observation of the map, the extent of it should invariably be tested by means of the blank one. There are two distinct modes of examination. All the markings except the county outlines may be removed, and the pupil may be asked to come forward and indicate with the pointer the position of the mountain. On the other hand, the teacher may point to the spot and bid the pupil name the feature. When the teacher points to the mountain marked on the map, and the pupil names it, the latter exercise assumes a much simpler form. But the final oral test must not be omitted. Questions should be asked bearing upon the mountains in a particular county, upon the direction of one peak from another, and upon the proximity of specified mountains to other physical features or to towns.

Lakes.

The study of lakes, lochs, and inland seas should follow that of the mountains, with which they are so commonly associated. In the first place call attention to the appearance and general distribution of these masses of water. With them the canals may be considered, because they not unfrequently form connecting links, and can be referred to so as to make the remembrance of the names comparatively easy. Apart from their commercial importance, discourse upon the saving in time effected by sailing through such short-cuts as the Crinan and Caledonian Canals, instead of proceeding by the more tedious and circuitous routes. But come again to the lakes and lochs. These occur where the hills are most numerous. Previous instruction will show that this is what might be expected. Hills and mountains imply abundance of hollows, which are apt to become filled with water. The absence of hills denotes scarcity of lakes. Prove this from observation of the map. In this case also the lochs should be studied by counties, a sufficient number being selected for a lesson, the length of which must not be determined by the area embraced but by the number of lochs. Again, names and situations have to be remembered, and to effect this, the running commentary on features or historical incidents will have to be persisted in. Except in a comparative way, the areas of lochs need not be referred to in the earlier stages. The skeleton map, with or without the hills marked upon it, will enable you to test most effectively the result of your instruction. The examination should not be confined to asking where certain lochs are situated, or the naming of the lochs in a specified county. The information which you casually supply in teaching should be rehearsed in examination. The lesson can only be made really interesting by the historical and incidental remarks with which you interlard your teaching. Although "the dry bones" of the text-book are to a very limited extent clothed by a few brief notes at the foot of the page, these are hardly sufficient to sustain interest; and often when the names have to be committed to memory from the book, without reference to the map, the remembering of the notes, instead of lightening the burden, only makes it heavier. It is the knowledge of the fact, and not of the particular phraseology in which the sentence is couched, that gives piquancy and value to the exercise.

Rivers.

After the lakes have been overtaken, the rivers which flow from them will naturally fall to be studied. Revise what you have already explained regarding the nomenclature and chief features peculiar to rivers. Question the pupils freely, to insure that they remember these things. Then open the lesson proper by referring to the general distribution and comparative sizes of rivers *throughout the whole country.* Call attention to the fact that they are numerous in some parts and singularly wanting in others. It is not likely that a child will be able to explain why in the immediate vicinity of lofty mountains no large river appears, so you will have to point out that while the greater part of the rain falls in this region, either proximity to the sea or the configuration of the physical features themselves leaves no scope for united magnitude in the moving water. Hence, instead of finding large rivers amongst the mountains, only numerous hill torrents dashing down the mountain-sides are met with. It is after they leave the higher elevations that they begin to accumulate and assume the size and appearance of real rivers. Refer to familiar examples to illustrate this, and show that if a river rises far inland, and drains an extensive area, it is likely to be large. At the preliminary survey the variety of sources should be considered. Some rivers appear to proceed from lakes, others from springs. To prove that the positions of the mountains have much to do with the sizes of the rivers, compare the east and west sides of Scotland. The western sea-board is hilly, hence few rivers of any size occur. To the eastward of the mountains there are long stretches of flat country, hence across these flow the more important rivers. Again, in England the great plain may be said to be on the eastern side, so the bulk of the great rivers drain this large area, and flow towards the east. On the western and hilly side the rivers are smaller and less numerous. The number of tributary streams determines the drainage area of the river, and the more numerous these are the larger the main river will naturally become. But more is learned from the course of the river. Point out that as the water takes the lowest and easiest path to the sea, and flows fastest where the slope is greatest, the slope of the country can be gathered from the appearance of the map. After these introductory observations, you may now proceed to deal with the naming and localizing of individual rivers. Begin at a convenient side or corner, and slowly point to the rivers in succession. You need not be too exhaustive in your first analysis of the map. The smaller streams may be overlooked until such times as the leading ones have taken root in the mind, and the additional study of minor currents becomes less irksome. The tributaries may not be taken up at the first survey. After the superficial aspect of the country through which the river makes its way has been commented upon, the river itself should be named and characterized. The lake it rises in, the mountains round its source, its magnitude, and its junction with the sea, should be talked about. Incidents connected with flooding and historical facts, which will help to make the task interesting and instructive, should not be overlooked. The attractiveness will be doubled when you introduce the class to the towns built in proximity to the river, by the industry and importance of which the greatness of the country is recognized and maintained. Nor ought the fact that rivers form convenient boundaries between counties to be lost sight of. Questions bearing upon the position of a river should elicit the counties which it separates. This discursive form of teaching has to be repeated a few times. Put random questions as you proceed, to test the attention of the pupils and sustain their concentrated efforts to grasp and remember the facts placed before them. After the first survey, the aid of the pupils should be enlisted in naming the rivers, tracing their courses, and rehearsing incidental information. By this method the pupils' ideas become part and parcel of the teacher's. The pointer should be moved from the source towards the sea, never the other way. On the blank map the appearance of the rivers can be made very pronounced, especially if they are denuded of their tributaries. The name should be written along the river, and not at its mouth. The latter position distracts attention from the appearance and situation of the river, while the former is the more impressive of the two. It is dangerous to introduce the blank map too soon, because, while it has the advantage of representing the rivers by themselves, and thus facilitates the remembering of them, it has the disadvantage of showing too little. It is better, on the whole, that rivers should be studied in connection with their environments; but the blank map will be serviceable as giving a general view of their distribution and a pointed display of their names. When the whole ground has been pretty minutely traversed, the affluents of the principal rivers may next be taken up. This will be by way of supplement to the preceding lessons. They have not hitherto received much attention, because in the primary stages the chief aim has been to impress prominent features, the positions of rivers, and simple outlines, emphasized by incidental local colouring by which a lively interest may be sustained. These are fixed by a variety of pleasing associations. A knowledge of the tributaries will be of special value when the towns fall to be considered. As they are arranged on both banks of the main stream, it will be well that the pupils should know what is meant by the right and the left bank of a river. Explain that a person wading down the stream, that is towards its mouth, would have the right bank on his right-hand side, and the left on his left-hand side. Hence affluents are spoken of as being on the right or left bank of the river. Begin by tracing the courses of the tributaries, taken in succession, on a particular bank. Work from the source towards the sea. Point to each, name it, and say as much about it as you can. Keep in mind that it is by no means an easy task for a child to remember the tributaries in succession, hence you will have to be very guarded in prescribing the number to be committed to memory at a time. The compactness of the whole—the *multum in parvo*—is apt to give the task an insignificant appearance, which is very misleading. It will greatly assist the pupils if, after you explain the precise appearance and *locus* of each affluent on the map, you make an enlarged copy of the special river on the board, and fill in the tributaries, naming them at the same time, so that they may be perfectly visible and legible. The pupils might then make copies on slates, write the names, and thereby have the whole permanently and intelligently impressed upon the memory. The names should invariably be remembered through observation of the map, and should never be learned from the book. The affluents of one river ought to be mastered before those of another are dealt with. When examining the class you might ask individual members to come forward and sketch, or indicate, the positions of the streams, or, what is easier, you might bid them name the ones you point to, taken promiscuously.

As subsequent study deals more with political than with physical features, it will be advantageous at this point to revise the whole of the preceding lessons, in order that the field for subsequent investigation may be well known, and the way paved for supplementary information.

Towns.

The number of towns in a county which may be committed to memory is by no means a fixed quantity. Various things combine to make a town important, but generally its population will be a rough guide to the amount of attention which it merits. The text-book provides lists attached to each county. These are useful in a sense. They are intended to guide the pupil in his study of the map, but upon no account is the list to be learned without the map. When the towns are committed to memory from the book the task becomes virtually cramming, and is of no practical value whatever. The impression made upon the mind may be accurate in the first instance, but it is merely transient, and may ultimately become erroneous and misleading. This will be especially noticeable when towns having the same initial syllables are mentioned. The child is conscious as soon as the name is uttered that it is mysteriously lurking somewhere in the recesses of his memory; but he is powerless to locate it, and if he attempts to do so it is by mere inferential guesswork. On the other hand, when he has grasped the situation of the town through observation of the map, at the mention of its name it will spring into his mind in all its vividness and *surroundings.* To set the pupils to commit the names to memory from a book (and they are inclined to do this because they are ignorant of the value of preparation through the map), because it saves the labour of teaching, is unpardonable. They are oppressed and harassed by the task. By jeopardizing the mental faculties they may make an apparently successful effort to achieve a temporary recollection of the names. But success too often results from the fact that the teacher holds the whip-handle, and not from any love of the study. The places must be remembered through the map. Let the pupils clearly understand the function of the name-book. It is merely intended to record the towns in the order of their importance, and to give supplementary information in an abbreviated form by the way. Endeavour to impress upon them the value and advantage of committing things to memory from iteration and observation of them in their relative positions. There is no doubt that the intellectual culture derived from contemplation of the object *in situ* is infinitely superior to the repetition of meaningless names. By degrees the pupils will come to realize this, after you have educated them up to a certain point. They will then fully appreciate the previous discipline, and will derive immense benefit from it.

In so far as the mere detecting of the locality of the town is concerned, the pupils can do this for themselves, either on atlases at home or on the schoolroom map. In either of these ways they may make themselves familiar with names and situations. When you assist them in the preparation of the exercise, place the tip of the pointer upon the actual locality, and not on the name of the town. The pupils should, if possible, be near enough to read the name, which you will pronounce, to be afterwards repeated simultaneously by the scholars. But while it is absolutely essential that the towns should be known thus far, a great deal has yet to be done. Each town has to get its due amount of setting. Not only has the locality to be known, but as much as possible connected with it has also to be remembered. Two things in particular have to receive attention. These are the physical features amidst which the town is embedded, and the industrial pursuits of the inhabitants, both of which make the study highly interesting and profitable. While, therefore, you rehearse the environments and recall what is historical, be careful to associate the towns you mention in their size, position, manufactures, and general commercial importance with the rivers which flow through or near them, and by which the amenity of the district is maintained and the industrial pursuits of the people encouraged. You will find that the subject treated in this realistic fashion will become very absorbing, so that some restraint may even have to be occasionally exercised so as not to allow the lesson to be too prolonged to be of real value. There is nothing which may tend to make the study disgusting; there is everything connected with it which should make it both profitable and agreeable. The task which the child takes pleasure in intelligently mastering is the very antithesis of cramming. You must not imagine that by giving each town its so-called *setting* you are imposing a heavier burden upon the mind and thereby overloading the memory. You are but aiding the pupil in his effort to grasp the fact by associating with the name and place something which strikes him as being very interesting, and which, while cultivating his intellectual faculties, facilitates the remembering of both name and locality. Thus place and incident are made to go hand in hand in creating a useful and lasting impression upon the mind. The towns constituting a lesson having been thus treated, revise the task county by county. Let your diction be as graphic as possible, in order that the facts may take deep root. When the pupils use the pointer, let each point not to a single town but to *all* the towns in the county, observing precisely the same order as you did, which should be one of magnitude, beginning with the largest and most important and ending with the least significant. The county town should always be put first, and the reason for so doing explained. While the pointing is being proceeded with, put questions on what you have been telling the class. This will test each individual's attention; but the interest will be keener and more widespread if at the end of the lesson you question the pupils promiscuously. Further, as the place or dot—not the name—indicating the locality is pointed to, the pupil should be accustomed to state the name of the river or firth by which it is situated, and add any facts relating to it. The names and situations of the towns will be speedily learned as the result of persistent, thoughtful observation and an intelligent grasp of their associations. Your function is to instruct—that is, to regulate and guide the pupil, to assist him in the digestion of facts which he ought to know, and to put what he assimilates to the test; his function is to learn. Inattention resulting from an injudicious prolongation of the task is to be guarded against. If the scholars have atlases of their own, you may prescribe the lesson and let them find out the places at home; but while this is in a measure a useful discipline, it is not for a moment to be compared with the more solid preparation conducted under your own immediate guidance.

It is impossible to lay down a fixed number of towns which may be considered sufficient for a single lesson. Their nature and importance, the time at your disposal for teaching, and the capacity of the pupils, will all combine to assist you in forming an opinion upon the matter. Perhaps at the first survey only one or two towns in each county or district might be dealt with. At subsequent rehearsals more and more places should be introduced, and intelligence steadily developed by the gradual accumulation of facts. Ultimately the pupils will possess a comprehensive knowledge of all the more important towns of the country. When towns are being studied the blank map will be especially useful. In examining the class you will find the appeal to it almost indispensable. The real map, on which the child ferrets out each name, gives him every advantage, because the surroundings of the town are carefully defined and suggestively printed; but the blank one gives no guidance or assistance whatever, and hence its value as a test of the first quality.

Local Industries.

After the principal towns throughout the country have been carefully studied, the pupils may be considered to have a tolerably intelligent idea of their general distribution, and occasional recapitulation will make them almost as familiar with the general mass of physical features as they are with their own immediate surroundings. But they have been accustomed hitherto to look upon towns as domiciliary aggregates. By-and-by it will be desirable that they should be reviewed in the light of their commercial importance, giving not so much value to their respective counties as weight and status to the whole country. To effect this they will have to be studied in groups. Take a pointer and indicate the area embracing a particular industry. It may be mining, woollen manufacture, cotton manufacture, or stone-hewing. Further, be careful to refer pointedly to the benefits derived from agriculture and cattle-rearing, in which a large proportion of the population is employed. Shipping centres should also be specially considered. As you point to the places discourse upon their leading industries. Explain how the towns are associated with, and are often the result of, the industry, whence they derive significance, wealth, and magnitude. Call attention also to their positions as convenient and natural centres whence trade and intercourse can be carried on. Nor will the survey be complete without some reference to the railway systems connecting the commercial centres. These can be best impressed by means of a blank map on which the lines may be traced, and the names of the towns thus brought into commercial contact written in the order of their occurrence.

But the historical review of the country must not be overlooked. To its inhabitants and the body politic its history is exceedingly interesting; to the world at large its commercial aspect is of primary significance. The great historical centres should be defined, and the leading incidents briefly described.

Historical Notes.

Some points with which the more advanced pupils should be familiar have not been referred to. Most manuals supply them, so that the remembering of them is to a great extent mechanical. If a single country is being studied, the population of its leading towns, the heights of the highest mountains, the areas of some of its most conspicuous lakes, and even the area of the country itself, may be got up. The extent to which you may safely deal with these minutiæ will entirely depend upon the status and ability of the class, and the advantages to be derived from the possession of information such as this. But even if the exact figures be not known, it is desirable that the pupils should have been subjected to a certain amount of drill on the comparison of populations, areas, and heights. The exports and imports might also be dealt with as a special lesson. The information which you, as instructor, supply orally and descriptively no manual can bring home to the child's understanding so attractively or effectively. The older and more intelligent section of the class may grapple with the terse aridities of the book, which younger members may view with disgust and discouragement. Your incidental supplementary remarks, and the pupils' persistent contemplation of the map, will tend to bring everything within the sphere of ordinary comprehension.

Supplementary Information.

When you question the pupils orally at the end of the lesson, the map may be suspended before them that the work may thus be thoroughly impressed, and the eye exercised in assisting the memory. Thus they grow to associate the facts upon which the questions bear with some definite and suggestive mental map. The answer should be derived from this intellectual outline, and should not emanate from the recollection of a certain place and page of a geography text-book. But the blank map has its special

The Value of the Blank Map.

function to perform at every stage and at every lesson, although it must never usurp the mental impression of the real one, which the child should bear with him through life. The departure from the use of the blank map after every lesson on the ground of want of time, inability to construct one, or of laziness, cannot be too emphatically condemned. What has been already said in favour of it is again emphasized. As a means of impressing topics, and testing the pupils' attention and knowledge of the subject, it is of paramount value. It isolates, in a peculiar degree, the lesson for the day from the matter of other lessons. It is desirable that you should be able to make skeleton maps on the board, sufficient to include the area covered by the lesson; but if you are unable to construct one on the spot, a handy and useful arrangement is a permanent outline drawn upon the back of an old wall map. Any teacher may prick the outlines of a disused map upon a large sheet of black paper, which may then be easily delineated in white or some outstanding colour. When the pupils are asked to criticise the drawing of the skeleton map much good is derived. To encourage this the sketch should occasionally be made somewhat roughly. The coarser the outlines the wider the field for criticism. The amount of attention which thereby becomes concentrated upon particular spots and even physical features, with a view to the detection of errors, serves to make a very useful impression upon the class, especially when they see you make the correction, which should invariably be done as soon as the deviation from the proper outline is specified. It will also be well to accustom and encourage the pupils to draw rough outlines for themselves, and to fill in the names with neatness and precision. Such a map may not include more than the lesson for the day. The task once begun is not difficult, and while it is exceedingly profitable it is by no means uninteresting.

LATITUDE AND LONGITUDE EXPLAINED.

Before introducing the class to the study of the great continental divisions of the earth, you will find it almost obligatory

The diurnal Motion of the Earth and its Effects.

to give a few lessons on lines of latitude and longitude as they are delineated on the ordinary terrestrial globe, or even on the map. Without a globe of some kind—nor does it matter how cheap or flimsy it may be, provided it is serviceable and sufficient for purposes of practical demonstration—it is almost impossible to impart an accurate and intelligent idea of the distribution of land and water upon the surface of the earth. Recapitulate what you have already explained as to the size and appearance of the world. Recall its oblate spheroidal form, and the proof on which the globular theory is based. Introduce supplementary evidence, such as the ship sailing in one direction and eventually arriving at the same starting-point, and the inference deduced from the contemplation of the rotundity of other heavenly bodies. Then suspend a map of Europe in front of the class, and after identifying its outline with that of the same continent delineated upon the globe, tell them that you are now going to explain the meaning of those lines which surround the globe, and which are repeated upon a plan or map of a portion of it. Careful observation will prove that the lines on the map occupy precisely the same places as those marked on the globe. Once more call attention to the comparative areas of land and water. Make a large circle on the board; divide it into quarters, whiten one of them, and thereby forcibly emphasize the fact that one-fourth of the entire area is land and three-fourths water. Explain that the surface of the earth is not like that of the artificial globe, which is smooth and soft. The earth exhibits hills and valleys; hence to make the surface more correct it should be roughened like the peel of an orange. Further, make it clear that there are no such lines on the earth itself, and that they are put on the globe for a purpose which is about to be investigated. You need not refer to the causes which may have combined to produce the earth's rotundity, nor attempt to show how objects of all sorts manage to maintain their terrestrial positions and fixed shapes. This would necessitate an amount of scientific knowledge which the scholars do not possess, and after all would have little or no bearing upon the point at issue. Take an apple, orange, or small turnip, and pressing a knitting-needle through the centre, prove that a globular body made to revolve does so about two external points and on one axis. Insert the wire at various places to show that this is invariably correct. Summarize the result, and impress the fact that the ball revolves about *two points*. At first the child thinks that the earth is at rest, because he does not feel it speeding under him like a merry-go-round. The sun he thinks of as a big, kindly, but distant fire, which, in the course of its diurnal visitations, of the generosity of its heart imparts both light and heat. This delusion must be dispelled. He must be told that it is the ball of the earth—the oblate spheroid—that turns as it were in front of the warm sun, which may meantime be considered a stationary body. But the earth is round like an orange, and, if it turns, there must be two points or places somewhere on its surface round which the revolution is effected. Explain that these parts are at the flattened opposite portions, which are spoken of as the *poles* of the earth. These are the coldest parts. The globe may now be made to revolve. Point to the fixed position of its poles, and the idea of its revolution will be understood. If a line or wire could be imagined passing through the centre of the earth, and protruding at the poles or turning-places, such a line would be spoken of as the axis of the earth. Children have little notion of the distance of the earth from the sun. They will, in a measure, grasp it if you tell them that a train running steadily at the rate of thirty miles an hour would take about three hundred and thirty years to reach the sun, whose influence upon the earth may now be explained and illustrated. Darken the room as much as possible, set a lamp or candle at a distance to represent the sun, and cause the globe to revolve about its axis in front of it. Then it will but have to be pointed out to be understood that the sun imparts both light and heat to the earth; that the countries exactly opposite the sun derive these benefits, which fall in an especial degree upon the parts nearest to or immediately in front of the sun; that when one half of the world appears to be in darkness the other is in light; and that every country gets its alternate period of light and darkness, or, as it is called, day and night. Show, by marking a spot, the nature of the revolution, and impress the fact that it is completed in twenty-four hours, which constitutes what is popularly called a day. The pupils will now realize that a day means not only twenty-four hours in point of time, but also a revolution of the earth on its axis. Bid them observe further that as the globe is turned there are parts where the light seems gradually to fade into darkness, while at others it appears to be steadily increasing. Hence the nature of twilight and dawn may be impressed. Further, point out that places emerging from darkness become more and more illuminated, till a point is reached, after which the intensity of the light appears gradually to diminish, till total darkness ensues. Now compare these illustrations with the actual phenomena. As the earth revolves, people find themselves emerging from the darkness of night into daylight, and the time is called morning. The revolution of the earth makes the sun appear as if it were rising. Then the day gets warmer and brighter till twelve o'clock, when the people find themselves exactly opposite to the sun. After that they are whirled away from it, and it grows darker and darker as night approaches, when they find themselves completely turned away from the sun. Here show that while some countries have day others have night at the same time. It will be interesting to show the position of the country on the map, and bid the pupils imagine a person standing at a particular point, while you turn the globe and explain the phases of light and heat through which he will pass during a revolution of the earth. It will not be difficult to convince the class that while it is twelve o'clock during the day at one point, it is also twelve o'clock during the night at another point exactly opposite to the former. To bring out the direction in which the earth turns, let the pupils think of the effect produced by travelling in a railway carriage or other vehicle. A westward movement of the conveyance makes one imagine that surrounding objects are hastening eastward, and *vice versa.* Identify the east and west sides of the country on the globe. Turn it before the luminous body, so as to suggest the rising of the sun on the east side, and the motion will be found to be from west to east, which is the direction in which the earth revolves. Before leaving this interesting branch of the subject, turn the globe once more in front of the light and show that it is the middle part that gets most heat. Point to the central situation of Africa, which is known to be hot. Refer to the weakness of the light at the poles, and associate this with a diminution of temperature, which will be recognized as characteristic of Greenland and other places said to be in the polar regions. The class is now prepared for the study of the terrestrial circles.

Terrestrial Circles explained.

The nature of a degree has first to be known. Describe a large circle on the board, and draw two diameters cutting each other at right angles. Explain the possibility of dividing the circumference into 360 equal parts by drawing 180 diameters, and from this conclude that in each quarter of the circle there would be 90 equal portions. Impress this conventional estimate of the circle by reiterating the explanation, and marking 90 degrees, or after explanation, 90°, upon each quarter of it. Now set the globe with its north pole directed towards the class, thus showing its greatest circumference as a clearly defined circle. Describe the nature of this line. Take a piece of string, and measuring the distance from pole to pole, divide the string into two equal parts, and show the pupils that the circumference they are beholding is at a point exactly midway between the poles, that on the globe such a circle is actually marked, and that on account of its position it is called the "equator." Write this word on the board, and refer to its meaning. But it is a circle, and hence it may be divided into 360 equal parts or degrees like other circles. It will not be difficult to get the class to understand that if 360 such divisions were made upon it, 180 circles passing round the globe and through the two poles would cut the circle or equator in 360 places. Dwell upon their converging towards the poles, each circle cutting the equator twice, as the globe itself will prove. But as these lines would almost cover the surface of the small globe, only every fifth or tenth or even twentieth circle is marked and numbered. But a commencement has to be made at some point. The inhabitants of Great Britain give to the line passing through Greenwich the number 0, and the others are described as being so many degrees east or west of this starting-point or circle. Previous instruction on meridians will enable the pupils readily to grasp these convergent circles as such. It will be interesting to recapitulate some antecedent facts bearing upon this, and to substantiate them by a skilful handling of the globe illuminated by the candle. Explain that such lines are designated "lines of longitude," and give a general definition of longitude as distance east or west of the meridian of Greenwich. The numbers will thus be shown to run up to 180. Thus far these imaginary circles have been explained; it will now be necessary to refer to their use. Make a small white spot on the globe, and challenge any member of the class to tell exactly where it is. It may be described as being near the middle of the globe, in proximity to a certain country, or in a particular ocean; but after all these suggestions convey but a vague and unsatisfactory knowledge of its precise locality. Point this out strongly; then call attention to the meridians just referred to, and show that by reference to one of these the situation can be narrowed down to a definite circle upon some point of which the mark may be said to exist. Bid a pupil find the number of the circle or meridian upon which it is. Suppose it to be 60, and in an easterly direction from Greenwich; it is thus 60 degrees east of Greenwich. Write this on the board. Then the class will be ripe to understand that if circles could be made passing round the globe, parallel to the equator and cutting those of longitude at right angles, it would be easy to fix upon the precise position of the spot, which, viewed substantially, might be made to represent a ship. This will prove that it is necessary to adopt such circles, which may be located and explained in a manner somewhat similar to those of longitude. Show them and their numbers on the globe. The degrees are counted north and south of the equator, which, as the starting-point, is numbered 0. Tell the pupils that these are called "lines of latitude," by which distance north or south of the equator may be determined. But to return to the ship. It is on the circle marked 15 degrees north of the equator; hence its position is exactly known, and a person writing a letter on board could tell the friend whom he addresses the precise spot on the ocean's surface where he is sitting at the time of writing. His friend on receiving the letter might take his atlas or globe and find upon it the spot from which the letter was dated. It is 60 degrees east of Greenwich and 15 degrees north of the equator, or, as it is briefly written, long. 60° E., lat. 15° N.

Recapitulate the preceding lessons, and while satisfying the pupils that no such circles occur upon the earth's surface, convince them of the utility of accepting them in an imaginary sense. Lay special stress upon the fact that when the sun appears highest at a particular place it is twelve o'clock at every point along the meridian passing through that place. It will of course be impracticable to enter fully into details regarding the determining of the latitude and longitude of a place experimentally; but the pupils are old enough to understand that, under certain conditions, noon at any point may be easily and accurately ascertained.

A useful Form of Exercise.

It will be a capital exercise to drill the class in finding the latitude and longitude of the towns or islands you name. This can be done by a scrutiny of the charts in the atlases, or the pupils may be asked to come forward by turns and read out the correct latitude and longitude. Vary the exercise by writing the latitude and longitude on the board and extracting from the class the feature which they indicate. Later, the number of minutes as well as the number of miles in a degree might be explained, and the lesson impressed by means of some interesting calculations involving both locality and time. A very useful lesson is the investigation of places situated on the same meridian or on the same line of latitude. This will lead up to the study of climate, which will have to be specially dealt with at a later stage. Meantime, it is topographical details rather than climatic influences which have to be considered. The degrees connected with the British Isles should be early known, and particularly the latitude and longitude of the parish and even the school should be detected and noted upon a large card or the plan of the latter to be convenient for future reference. In the case of the higher classes frequent drill upon the foregoing lines should make them thoroughly conversant with their value and significance. Scarcely a lesson should pass without some practical allusion to them.

The Lines on the Map.

After these explanations, you have only to point out that just as a country in its plan or map form may be copied or picked off the globe, so the lines of latitude and longitude may at the same time be transferred and correspondingly numbered. The proximity of the lines to one another will regulate the size of the map. This will at once be obvious. Refer to the advantage in map-drawing of having these lines carefully arranged upon the slate or paper to secure accuracy. They form, as it were, a convenient frame-work upon which the contour and details may be correctly delineated. At the same time, let the pupils understand that while such lines may be utilized in map-drawing, their function has nothing whatever to do with this branch. They will now be in a position to understand why lines of longitude appear to converge towards the top or bottom of the map, according as it represents a country north or south of the equator. The meaning of a hemisphere will be easily grasped after a brief explanation. The earth may be said to have a northern and a southern hemisphere, or an eastern and a western one. Great Britain would be in the northern hemisphere. As the pupils may be supposed to have some general knowledge of the distribution of land and water and of the great continental divisions of the earth, it will be profitable and interesting to apply their knowledge to the proof of the hackneyed expression, "The sun never sets upon the British Empire;" but this can be best done after the acquirement of some familiarity with the constituent parts of the empire.

GENERAL SURVEY OF THE EARTH'S SURFACE.

To make a lesson on the general appearance of the earth's surface effective a globe is absolutely necessary. After referring to the comparative areas of land and water, point out that all the land appears to be massed together in two large pieces on what may be called opposite sides of the earth; that most land occurs north of the equator, or, to put it otherwise, in the northern hemisphere, while the southern is chiefly taken up with water. Note also that land projecting southward has a tendency to taper, as may be seen in the case of America, Africa, Arabia, India, and the Malay Peninsula. Again, compare the insignificant size of the islands of Great Britain and Ireland with the areas of other countries and even continents. Refer to the area of Lake Superior, which is almost that of Ireland, and from this lead the pupils to imagine the sizes of the vast rivers and mountain chains of the New World. But while you prove the comparative insignificance of the British Isles in point of size, take care not to overlook or depreciate their national and commercial importance by such allusions. Dwell upon the utter worthlessness of a great deal of the land in other countries, and of their lack of civilizing influences, and suggest that Britain's greatness is traceable to its insular position, the wide diffusion of its colonies—some of them being very great—and to the intellectual culture as well as the zeal and industry of its people in every clime. Then proceed to indicate the great continents of the Old World—namely, Europe, Asia, Africa, and Australia. Explain that this portion has been called the Old World in contradistinction to that discovered by Columbus in the end of the fifteenth century, which has since then been named the New World, or America. Turn the globe that the class may see the great oceans separating these two masses of land. One is a long narrow ocean called the Atlantic; the other is very large and oval, and is the Pacific. The former has few islands in it; the latter is studded with them. Then the Arctic Ocean—an extremely cold one—occupies the region of the North Pole; while the Antarctic

Ocean—a still larger and colder one—covers all the southern regions of the earth. Retrace your steps, and speak of Europe as being the best known, most advanced, and most civilized of all the continents, although it is very far from being the largest. Refer to the civilization of the others, and those influences which may have tended to retard progress. Touch upon the explorations of such men as Livingstone, Stanley, Grant, and Speke, to bring out the obscure nature of Africa, which has been fittingly termed the "Dark Continent." It will next be useful to convey to the pupils a general idea of the distribution of the British Colonies throughout the continents. It is certain that it will take much persuasion to induce them to contemplate three such insignificant-looking islands as England, Scotland, and Ireland in the light of greatness. But viewed with their colonies there will appear to be good reason for the appellation Great Britain. Point to the parent isles and the significance of their position, internal wealth and general surroundings pre-eminently enabling and entitling them to possess the most powerful navy in the world. Take a general survey of the distribution of the British colonies on the globe. Dwell especially, as you point to them, upon such places as Gibraltar, Aden, Cape Colony, India, Australia, New Zealand, Canada, and the Central American possessions. By the time you have finished this epitome, the pupils, to say the least of it, will have had ocular proof of the immense extent and influence of the empire. An important point to take up is the comparison of the physical features of the continents, and especially of the Old and New Worlds. Run the pointer along the great mountain chain of the Old World, trending east and west right across the middle. Indicate the situation of the Himalaya Mountains, about five miles high, the loftiest in the world, whose summits are covered with perpetual snow. Show that the same Asiatic range may be said to extend across the continent of Europe, where it culminates in the Alps, the highest mountains on the European continent; and that this continuous chain stretches across Europe and Asia, keeping in the line of the greatest length. Then dwell upon the great plains lying north and south of this great barrier, across which there wind the mighty rivers of the Old World. Bringing the American continent under observation, point to the great chain of the Rocky Mountains in the northern portion, and its continuation —the Andes—in the southern, as forming the backbone of the New World. These also lie in the line of the greatest length, which in this case is north and south. Speak of the absence of plains westward of this great range, and the consequent lack of rivers of any consequence, and point to the great plains and valleys of the eastern side, drained by such gigantic volumes as the Mississippi and the Amazon. Lead the class to infer that the greater the mass of land or continent the higher will be its mountains and the larger and longer its rivers. As has been already said, the magnitude of enormous rivers and lakes can best be realized by a comparison of their lengths and areas with some of those of the British Isles. Just as the scholars form their ideas of the great unseen features of the earth by associating them with the characteristics of those which surround them, so they will be enabled to grasp in an especial degree their overwhelming magnitude if you estimate them alongside of objects which they are accustomed to look upon as both large and important. Nothing is more natural and convincing than the comparison of the unseen with what is known and realized. It is the insignificance of the one that gives magnitude to the other, and *vice versa*. After this preliminary survey of the general aspect of the land portion of the globe, the class may now be introduced in an intelligent and agreeable way to the study of the separate continental divisions.

THE STUDY OF A CONTINENT.

A continent admits of being studied in more ways than one. You must carefully distinguish between the study of a country and that of a continent. In the former case you consider details in their narrowest and minutest aspect; in the latter the survey is of a wider and more general nature. A country such as France, Spain, India, or Canada, may be broken up into its separate parts or divisions, the physical features, topographical minutiæ, and political arrangements being dealt with in their most detailed form, precisely as England or Scotland might be handled, after a preliminary comparison of its size, surroundings, and physical appearance with those of the continent of which it forms a part. On the other hand, a continent such as Europe may be treated broadly, as if it were a country and its constituent countries only counties. France might thus represent a division of Europe, just as Banff is one of Scotland. The different degrees in which a continent may be studied are very numerous. The more prolonged the investigation the fuller will be the knowledge and the more intellectual the effort to acquire geographical information.

After the British Isles have been exhausted, it will probably be natural to take up the geography of Europe, of which they form a part. Begin by reviewing its comparative size and shape as shown on the globe. Then introduce the map, and after specifying the boundaries deal with the countries, and convey to the class a knowledge of their general aspect, contour, and importance. Some allusion might conveniently be made to the manner in which each is governed, thus making the introduction as attractive as possible. Then take up the islands which belong to the respective countries. Associate them with the seas and gulfs in which they occur, and after proving by means of the blank map that these have been mastered, go over the capes throughout the continent. This maritime survey being successfully concluded, proceed inland and indicate the chief mountain ranges, mentioning in the first instance a limited number of the principal summits, the heights of which might be interestingly compared with that of Ben Nevis or Snowdon, with which the class may be supposed to be already familiar The lakes will next present themselves. They are comparatively few, but some of them are important. After them the river systems will demand attention. These will prove an interesting item of study. Show how they converge towards particular seas, and induce the scholars to think of the features and slope of the countries drained by them. At the same time note the chief towns situated in proximity to them. The chief tributaries—two or three belonging to each river—might also be alluded to. Your own private study and the daily reading of the pupils themselves should furnish matter for that amount of intelligent and concurrent commentary on the various places and features under consideration which makes the lesson at once profitable and pleasant. *Study throughout your teaching to make the mention of a name suggestive of some interesting and instructive association.* Switzerland, for instance, might suggest the Alps, with Mont Blanc, avalanches, the monks of St. Bernard, and the St. Bernard dog. Geneva might bring to mind the famous Geneva watch, and carry the conviction that the Swiss are expert watch and clock makers. Again, Lisbon will induce thoughts of its great earthquake, Sicily of the volcano Mount Ætna, Rome of the Pope, Moscow of Napoleon and his discomfiture in 1812. The wars between nations should occasionally be referred to, more particularly if they have resulted in the shifting of the frontier lines. Note might be made, for instance, of the war between Germany and France, by which the latter was deprived of both possessions and imperial administration. You will not be long in discovering that what is told in this casual way, when the pointer is on the actual spot, will be much more interesting to the pupils than if they read it from a book. It will also be more easily accepted; and the more striking and graphic your description or statement the longer the information will adhere to them. It is this sort of teaching which tends to develop intellect and lighten the labour of the child, and which results in intelligent men and women. Ultimately the commercial advantages, the nature of the trade and productions, and the climate of individual countries will demand attention. Now in particular the pupils should be accustomed to draw maps showing the leading physical features and the situations of the chief towns. It is repeated that what the eye dwells longest upon becomes fixed most vividly and permanently in the mind, hence the especial value of map-drawing as a means of impressing the names and positions of the constituent elements of the country.

The same method and order of teaching might be adopted when you proceed to the investigation of any of the other continental divisions of the earth.

THE BRITISH POSSESSIONS.

It is natural as well as necessary that the class should have some knowledge of the continents of the globe before essaying to grapple with the scattered dependencies which unite to form the British Empire. The simplest and handiest way is to take up the colonies in a particular continent, make a study of them in a series of lessons, and then proceed to the consideration of those occurring in some other division. The class may be supposed to be familiar with the position of each colony in the continent, just as they know the rivers and mountains on the map. If the colony be large, such as Canada or Cape Colony, the features will have to be studied separately. But whether it be large or small, the general survey of it should be supplemented by special reference to events connected with its annexation, its outstanding peculiarities, its relations with adjacent countries, and its value and importance to the mother country as a specific possession. Deal with the details of one colony before passing to the next. The magnitude and importance of such dependencies as India and Australia will necessitate the study of them on specially-constructed and separate maps, which will be found in every well-equipped school. Nor must the interchange of productions be overlooked. These can be best remembered through a comparative review of the colonies, after those occurring in each continent have been minutely considered. The disposal of products will also be an interesting item of study. It will be well to associate each of the principal colonies with one or two leading productions or articles of commerce. For example, Australia might be associated with gold and wool; India with tea and opium; Canada with grain and timber; and Jamaica with rum and sugar.

The different and quickest routes between the mother country and the colonies might also be studied, and reference made at some length to the dependencies as fields of emigration for the relief of surplus and congested populations. These might also be viewed in point of suitableness and social economy, and reasons for selecting one place in preference to another as a settlement should be clearly indicated and carefully weighed.

It is only by some such discipline as the above that the class will be enabled to form an intelligent notion of that amicable spirit and bond of unity which must exist in all its parts, in order that the whole may be welded into a well-organized, powerful, and independent empire.

CLIMATE.

A few interesting lessons might be given on climate. By the time the pupils are in a position to tackle this subject, they will be able to understand your explanations regarding the annual as well as the diurnal revolution of the earth, and the angle made by its axis to the plane of the ecliptic. These have an important bearing upon climate, as you can readily illustrate by making the globe revolve round an imaginary sun. In this way the general distribution of heat will be understood. The equatorial regions will be the hottest, the polar ones the coldest, and the intermediate parts of medium temperature, or, as it is called, "temperate." After this, draw a figure on the board to correspond with the shape of the earth, and divide it into the climatic zones, and name them. Follow this up by referring to the distribution of the colonies. Those in the tropical or torrid zone will naturally have the warmest climate; while a more steady, mild, and equable one will be characteristic of regions situated within the temperate belts. After this broad survey of the subject, other points might be taken up under the designation of Physical Geography. These will deal with extreme climates, and the effect of altitude in diminishing the temperature as illustrated in the case of the lofty table-lands occurring within the pale of the torrid zone. The influence of the sea upon climate should also be specially considered. Again, the bearing of the climate upon the nature of the productions and upon the colony as a settlement for emigrants should be systematically weighed. Every fact you mention and every argument you adduce ought to be clearly understood and assimilated. Hence arises the value of your having the facts well thought out and arranged before laying them before the class. As you instruct, put open questions to encourage thoughtful and sensible answers, and thereby draw the pupils towards this most interesting branch of the subject.

MAP-DRAWING.

Introductory Statement.

The practice of map-drawing is of the highest importance to a pupil who is learning geography. Its value cannot be overestimated, as the foregoing methods of teaching will have proved. This branch may now be specially referred to. Power of concentration of thought upon a particular portion of the globe through sustained observation is perhaps of paramount importance; the test of the effort is the reproduction, in a tolerably accurate and neat sketch, of the thing considered. Map-drawing or copying in some form or other cannot be begun too early. Young children may be taught to make rough plans of familiar spots and surroundings, and even drafts of common objects of extreme simplicity of outline. The exercise will prove by no means unattractive, and the progress they will make when they come to copy the map itself will justify an early attempt at rudimentary delineation. The lines connected with map-drawing are much more difficult to reproduce than those of such a simple figure as a square, an oblong, or even a basin. In the opening stages draw such simple figures as these on the board, and set the pupils to make copies on slates. This will train them in a pleasant way to perform the three essential steps required in every kind of drawing —namely, (1) *looking*, (2) *remembering*, and (3) *reproducing*. The sooner the child gets accustomed to these successive operations the better; for you will find that the rapidity with which an intelligent grasp of geography is acquired will be in proportion to the proficiency in these three arts. It has been already urged that the pupils should be taught as soon as possible to make special drawings of the portion of the map which includes the lesson for the day. This will be easy enough if they have been accustomed to draw the outlines of simple objects beforehand. In this light the matter is treated synthetically.

The Method of Teaching.

Arrange the class in full view of the board, which should be properly cleaned, and see that every child is provided with a well-cleaned slate and carefully-pointed pencil. The lines which are used to indicate mountains, rivers, lakes, coast, etc., should be first enlarged upon and illustrated. When you point to examples of these on the map, be studious to select such as will most felicitously justify your remarks. At the very outset demonstrate that in connection with map-drawing there is hardly such a thing as a straight line. The only lines which have a somewhat rectilineal appearance are those which indicate the positions of canals, railways, boundaries of parishes and counties, in addition to lines of latitude and longitude. Prove that this is the case by pointing to the general aspect of the natural and artificial features occurring on a map where these are well defined. Very few straight lines will thus present themselves. Perhaps the wavy or crooked line is the most common. Coasts, rivers, lake-shores, and even the general direction of mountain chains are represented by this form of line; so it will be well that the pupils should be taught to observe and reproduce it in their own efforts. Take the chalk, and with its broad, untrimmed point draw a firm wavy line characteristic of a piece of coast. It might profitably appear somewhat heavy. As you do this, describe its wavy appearance. Then bid the pupils make copies of it in its principal characteristics on their slates, and while they proceed with the work, go amongst them for purposes of assistance, correction, and commendation. In this way the configuration and mode of representing a piece of coast will be impressed. Follow this up by the representation of a river and its tributaries. Clean the board at the same time as the children remove from their slates what they have drawn. Make on a large yet compact scale the outline of a river, and as you do so allude to the entire absence of the straight line, and to the presence of the wavy or curved one from its source to its mouth. The nature of the latter will have to be illustrated. Make a little bit of coast-line, and where the river is found to join it take out a small curve or conical piece, to show that the current washes off a part of the shore, which assumes some such indented form. In drawing, commence at the source and end at the mouth, and be careful to make the line thicker as it trends seawards by repeated applications of the chalk. Then add a tributary or two. Subsidiary streams will be very much finer in their delineation than the main one, and at their source will be very delicate indeed. These, although less bold than the river itself, will possess the same curvilinear characteristics. The junctions are to be specially described. At its mouth the affluent seems to turn for a little in the direction in which the main stream flows, and finally to burst into it in a slanting direction. Pupils are apt to be careless about the points of contact. They draw the tributary in a haphazard way, and represent it as cutting through the river itself, and even projecting for a little beyond it. This is the result of slovenliness. If you show the error in an exaggerated form they will be less likely to perpetrate it when they draw maps on slates. They may now attempt the delineation of the river you have made, putting in the tributary attached to each of its banks. As before, superintend their efforts; and then, while the work is fresh on both board and slates, if you have not already done so, make a lake at the source of your model river, observing a measure of freedom in its outline. This also the pupils will copy. Finally, make a dot or two on the banks to illustrate the marking of towns. Point out that the position of the dot determines whether the town is on the right bank or on the left, and that as much care will have to be exercised in fixing it as in making the river emerge exactly from a particular lake or loch. The representation of mountains may next be undertaken. This is perhaps the most troublesome part of map-drawing, because a certain amount of ease and freedom in the manipulation is necessary in order to give the map an agreeable and graceful appearance. The exercise requires much practice to do it well, so that you must not be too exacting at first, provided the pupils manifest a desire to be careful in their work. At the same time, while a heavy line, which should always be agreeably curved, may be accepted in rough sketch-maps as indicating the arrangement of the mountains, a strenuous effort should be made and every scheme devised to train the pupils to effect the attractive caterpillar form of delineation. Illustrate on the board how a mountain range may be represented, and make the strokes showing the relative slopes of the sides of a wavy and not of a straight form. It will be interesting to explain the idea intended to be conveyed by lateral lines of varying length, although it will not be judicious to insist upon a strict observance of minute details till a high standard is reached in the stereotyped manipulation, and the pupils manifest an inherent and spontaneous desire to perfect their work. First attempts will have much the appearance of two combs placed back to back; but this somewhat stiff representation, by practice and painstaking, will give place to one less conventional. The pupils should copy what you have drawn on the board; and the exercise might be followed by the construction of a few mountain peaks or isolated summits, in which the strokes seem to radiate from a vacant centre representing the apex. Let them practise the delineation of these features as special exercises till they are able to do them with tolerable facility and gracefulness. After this initiatory discipline in the construction of parts, the copying of a small portion of a map may be attempted. Some may prefer to take up the map-drawing of the county in which the school is situated as a sequel to these preliminaries; but if geography has been taught on the lines already advocated, no greater benefits will be derived from the reproduction of a plan of the county than from the copying of a particular portion of the country itself. Suspend the map in full view of the class, take a pointer and run the tip of it round the part you intend to make a copy of. The coast will be drawn first. Point to the spot where it will be convenient to commence. As the lines of latitude and longitude may not be clearly seen from a distance, these can hardly be profitably utilized at this time; hence the sketch will have to appear without them. It will be exceedingly helpful, and it will lend accuracy and expedition to the work, if you mark certain prominent points or places in the first instance as a sort of guiding-marks in the drawing. These should be fixed at the commencement, and as nearly as possible in their relative positions. The pupils should do the same on slates. They may then carefully follow your manipulations of the lines and curves, and grasp the concomitant explanations. They should especially note the exaggerated gaze you bestow upon the map preparatory to its reproduction. This prolongation of the contemplation impresses them with its importance. Remember that you must teach them to *observe* as well as to *reproduce.* The coast-line being traced in firm, easy, and unmistakable outline, bid the pupils copy on slates what you have done; and while they do so, superintend their efforts. Again, let them give attention, every slate being laid on the desk, and arms folded. You may, in the next place, mark the boundaries of the counties, which the scholars will also repeat on slates, after observing your execution of the work. The chief mountains should then be dealt with, on lines already referred to in the preparatory stages of the subject. When these have been satisfactorily copied from your sketch, the rivers, tributaries, and lakes might be inserted and copied with precision and freedom. Finally, the towns may be marked by dots showing their situations. Let the class clearly understand that the name is quite insufficient without this index of the place's position. Look narrowly at the slates to see that the dots are properly placed, and the name of each town conveniently appended.

Arguments in Favour of the Method.

This method of teaching transcription of a given plan or map has many advantages. In the first place, the pupils are impressed with the *importance* of the task, from the fact that it is taught; and in the second place, the alternate processes of *observation* and *reproduction* have a powerful, educative influence. When the hand is thoroughly subservient and responsive to the eye, the keenest and most attentive observer may naturally be expected to produce the neatest and most accurate sketch. But in the third place, no more permanent impression could be made upon the mind than that resulting from so close a study of the map. You will thus realize how a series of such exercises, performed with regularity and in succession, and embracing the prescribed geography lessons, is likely to be instrumental in giving the pupils a speedy and abiding grasp of the physical features which they are trying to remember. The extent of the task should naturally increase as the class makes progress in the study. Some maps are more easily drawn than others. In the earlier stages, for the sake of encouragement, portions presenting as few difficulties as possible should be prescribed.

Map-drawing in advanced Classes.

In the more advanced classes map-drawing should be looked upon as an exercise which must necessarily accompany every lesson on the geography of the country under consideration. The subsidiary delineation of the specific task for the day should never be overlooked; and when every portion of the map has been overtaken, the map as a whole may be drawn from memory as a test of the pupils' knowledge of the relative sizes and positions of the physical features of the country. When the work is fairly executed on slates it may be attempted on paper. At first this may be done with lead pencil only, so as to give the pupil a chance of erasing incorrect lines, and prevent that disappointment which invariably results from failure with pen and ink. In conclusion, it will be well to indicate a few points to which special attention is necessary in connection with this most important branch of geographical study.

POINTS TO BE SPECIALLY OBSERVED IN MAP-DRAWING.

Map-drawing, like writing, requires a special attitude of mind and body to guarantee its successful accomplishment. From the outset insist upon the pupils' looking well at the object which they contemplate copying. From observation of yourself they should be virtually trained to measure the amount to be carried in the mind at a time. There is no doubt that this is ultimately performed instinctively. Endeavouring to grasp too much is fatal to progress, and invariably results in vague notions and consequent fertility of errors in delineation. As you construct the model in the presence of the class, be studious to assume the air of a beginner in the art, thereby enlisting the sympathy of the pupils, and presenting the task in as attractive a guise as possible. Proceed slowly and deliberately, and give the work that amount of *finesse* which results from a previous study of the subject. Encourage everything in the shape of well-meant effort, and be cautious in the correction of errors of judgment. It is repeated that it will be well to show that by selecting a few points, and marking these in their relative positions, the task of filling up the spaces is rendered materially easier, and the accuracy of the sketch much more certain. In addition to showing the nature of the points which may be thus utilized, you might explain that, by simple measurements of their distances from each other, the mind is considerably relieved in its endeavour to grapple with space.

Lines of Latitude and Longitude.

The older pupils might deal with lines of latitude and longitude. These, be it noted, should always be arranged before filling up the map, and never after the completion of it. From the symmetrical and convenient figures which they form, these lines greatly facilitate the drawing, and when well fixed and correctly numbered they denote greater proficiency in the art. Young children will find difficulty in arranging them proportionately; and once badly fixed, they distort and mar the whole outline, making the map either too long or too broad. On this account they may be relegated to the sphere of the advanced classes. When the child draws on paper on which these lines are marked, he derives considerable advantage from them, the more so if he understands their import and utility, both of which have to be carefully explained; otherwise he is apt to put the sketch out of joint, and he turns from it with feelings of dissatisfaction—it may be of disgust. Through the eye the mind is often painfully conscious of the error which the hand is utterly unskilled to correct.

Squares.

Occasionally maps are divided into squares. To bid the pupils copy the contents of one of these is a reasonable and profitable exercise. In this instance the task is even simpler than that which leaves to the eye to estimate the relative lengths of the different lines.

Naming the Parts.

When the physical features have been marked, they have to be immediately named. This should be done neatly and accurately, so as not to mar the whole tone and character of the map. Let nothing superfluous or unimportant be inserted. Too many names tend to obliterate the essential features, and give the drawing a disgustingly "namy" appearance.

Copying the Blank Map objectionable.

Copying from the blank or skeleton map is dangerous, and should sparingly be practised, because it is apt to engender a crude tone, which makes the map appear at once artificial and stiff.

Drawing on Paper.

By-and-by the drawing may first be done on slates, and then drafted on paper with lead pencil. After being thus faintly delineated in pencil, it may be made permanent with ink. In map-drawing ink is a subtle fluid to deal with. It is difficult to manage and distribute properly. Once it becomes fixed it cannot be satisfactorily erased; hence corrections should be made in the pencil stage, to obviate mishaps which may arise from a premature or foolhardy application of the liquid. The outline of a lake is so like that of a river that it will be well to fill the internal space with a few delicate and parallel cross lines for the sake of distinction. Again, the demarcation of county boundaries should be very much fainter in appearance than the lines indicating the rivers or coast-line. The boundaries may even be traced by a series of small dots.

Printing of Names.

The printing of names is an important element in map-drawing, and should not be overlooked. These, when well executed, add tone to a map by heightening its artistic effect. Give a few special lessons on the requisite kinds of printing, and as a preparatory discipline exercise the pupils in printing, both on slates and paper, lists of names which you will be careful to prescribe. The effect of this training will be very manifest when the work has to be executed on the actual maps.

Map-drawing, while of the utmost educational value, takes a considerable amount of time for its satisfactory performance.

Revision of Exercises.

Hence it is desirable that the art learned in school may, when convenient, be practised at home. When the maps are handed in for revision, be careful to mark in a distinct and eye-catching colour the chief defects. This enables the pupil to estimate the value of his work, and is a very superior discipline to that which results from the mere dubbing of the map as fair, good, or excellent. No map should occupy less space than is contained on a side of a sheet of notepaper. When the maps have been marked, they should be returned to the class, that each one may, from a consideration of his errors, be enabled to guard against a future repetition of them.

THE COLOURING OF MAPS.

The tinting of maps is a delicate operation. No amount of colouring will make up for incorrect delineation. Just as the portrait-painter is fully aware that unless the features of the sitter are accurately located on the canvas in the first instance, no amount of subsequent painting will produce a good likeness, so the map-drawer should realize the fact that bad outlines at once brand the work as defective, no matter how skilfully or admirably the colours may have been applied. Colouring is a branch by itself, and has really nothing to do with map-drawing properly so called. It is useful, however, in so far as it at once indicates to the eye, by sharpness of contrast, the distinction between land and water, and between one county and another. In addition to this, it forms an agreeable feature of the sketch. Unquestionably it has a great attraction for children, who glory in colours. They ought not to be allowed, however, to use them until you have given a few lessons of a practical kind upon the subject. The map should first be carefully outlined, and the physical features marked in pencil. Then the pencilling should be gone over with ink, and the names carefully and neatly written or printed. The map will now present a tolerably finished appearance. The coast-line, as being the most prominent part, should catch the eye first. Care must be taken not to use copying ink, else the subsequent operations will ruin the sketch. When the ink is thoroughly dry, the colouring may be attempted. Water-colours require considerable skill in their manipulation, hence only cultured and advanced pupils should be allowed to apply them. As a special degree of management is necessary to prevent the bagging of the paper, which is apt to give the work a disagreeable and clouded effect, because of the uneven distribution of colour, it will be found more satisfactory in every way to place crayons in the pupils' hands at first. Adhere to those colours which are adopted in the atlas. Demonstrate practically the moving of the crayon lightly over the county, and then the softening of the whole by rubbing the surface, briskly and with some pressure, with a stump or piece of blotting-paper spread over the tip of the forefinger of the right hand. This operation is intended to obliterate the impression of the lines and give the county an agreeable and uniform tint. The part of the sea adjoining the coast-line should be similarly treated. The drawing in ink of six or eight successive lines parallel to the coast to indicate the presence of salt water is hardly to be encouraged, because it requires the skill of an expert to make the effect telling and at the same time artistic. A very effective design is produced by simply taking a black-lead pencil, beginning at the coast-line, and drawing it smartly and with diminishing pressure at right angles to the coast for about half an inch or so seawards. Make the successive lines pretty thickly round the whole of the seaboard, and then with the tip of the forefinger rub across them and round and round the coast till they disappear as lines, and a soft, dark shade, gradually diminishing in intensity as it trends seawards, takes their place. When well executed, the effect of this border in making the configuration of the country stand out is marvellous, and the exercise is one which any fairly intelligent child can be taught to perform satisfactorily. As colouring is of secondary importance to map-drawing, the attention of backward pupils should perhaps be limited to the latter branch.

CONCLUDING REMARKS ON TEACHING GEOGRAPHY.

The Maps. The maps used should be as good as possible—that is to say, those in which the physical features readily catch the eye, and which contain only such details as are really interesting and necessary. The more important towns should be boldly printed. Each map should be of a convenient size, and certainly not too large. The colours must not grate upon the eye, but should be artistic yet sufficient for purposes of distinction. Pure primary colours are to be avoided. The blank map should not be coloured. Like the sketch one on the board its function is to test the pupils' knowledge of locality without suggesting to the mind an æsthetic effect.

The Class. *The class ought invariably to be so arranged that every member of it can distinctly see the details of the map.* If you can't bring the class to the map, take the map to the class. Keep the dullards in the front, and bid them wield the pointer oftenest. You must get the pupils interested in the work. This betokens close attention, which, supplemented by a desire to learn, may help to counterbalance a vacillating memory. At the geography lesson standing is preferable to sitting, but it has its limits, and may not be persisted in till the pupils become distracted by aching limbs. When they are more concerned about bodily twitchings than topographical details no progress can be recorded.

The Teaching. If possible, assist the pupils in the preparation of the next day's lesson by going over it with them and carefully indicating the points which they may assimilate at leisure and commit to memory in an intelligent way through the medium of the private atlas. Lessons should be short as a rule, because the exercise puts a considerable strain upon the mind. Your own ingenuity will be applied in devising plans for assisting the memory, and thereby sustaining interest in the study. Let the teaching be conducted as a rule on the terrestrial globe or on the map, and the subsequent examining mainly on the blank or skeleton map. Your language ought to be clear, collected, and lacking in any semblance of hesitancy.

It should tend to inspire confidence in the children while you slowly unfold the mysteries of the wonderful world they live in. It is a capital test to bid the pupils come forward individually and with the chalk fill in whatever features you name, only the outline of the day's lesson being delineated on the board. This is preferable to misplacing the details yourself and challenging the pupils to rectify the errors. Suggestive questions such as, What town is that? Name a mountain here, etc., are generally to be avoided. They might take the form of, What am I pointing to? Name towns inside this ring, etc. In advanced classes, in particular, the pupils ought to be *drilled in naming in succession the physical features underlying a line supposed to cross a country, a continent, or any portion of the earth's surface. The task may be varied by asking* them to write—putting in topographical details, physical features, and directions—an account of a voyage, say from London to Calcutta, or from Brindisi to Callao. You will observe that such an exercise presupposes great familiarity with the earth's surface, so that its adoption as a test of knowledge can only follow a pretty wide and prolonged study of the subject. It is again urged that while the incidents connected with the place should follow the mention of the name, the remarkable way in which nature and circumstances determine the industrial pursuits of the inhabitants—as when we find them engaged in the coal trade where coal abounds, or in the woollen manufacture where wool is plentiful—should be carefully commented on. Nor may the scenery be omitted. As well as putting valuable matter before the pupils for reading, be earnest in the pursuit of knowledge yourself, that you may be thoroughly conversant with abundance of interesting supplementary matter in the shape of incidental or historical topics and commercial pursuits, before you face the class in the capacity of guide and instructor.

Pictures and Specimens.

It is of special educational and intellectual importance that you present to your scholars a copious display of pictures, photographs, views, sketches of scenery and of the means of transport, as well as specimens of the productions of different countries. Those bearing upon the places, incidents, and persons referred to in the course of the lesson should be seasonably introduced. Let your collection be as complete as possible, for such apparatus, while lightening your own labour, will tend to create special interest in the lesson, to which will be added a tone of tangibility and reality. The more graphically you describe things the more vivid will be the impression produced on the pupils' minds. A verbal description by the teacher makes a far deeper impression than details which the scholar gleans by private reading.

Effect of the Study.

To advanced pupils lessons on physical geography bearing upon the atmosphere, its phenomena and effects, should be frequently given. While intelligence will be thereby cultivated, a desire to study nature independently will at the same time be fostered. They should come to feel that they are dealing with realities, and not with that which is ideal and fictitious. As knowledge accumulates, they will be enabled, as denizens of one item of a great universe, in some measure to comprehend the beauty, the vastness, and the intricacy of their environments, and will thereby be fitted to discuss and promote with their fellow-beings those interests which tend to further the welfare of the empire to which they belong; and when they study the great historical events and forces which in past ages combined to form nations, and especially their own, they ought, from a contemplation and comprehension of the mental map, to be able to trace intelligently the progress of imperial or national growth to its final accomplishment.

CHAPTER X.

HISTORY.

INTRODUCTORY REMARKS.

FOR children perhaps the bulk of so called History presents little fascination. Nevertheless, what is sometimes unattractive may be of educational value if handled in a proper spirit. Those who are disposed to the study and enjoy it seem as a rule to be captivated more by the record of bloodshed than by the epitomized biographies of distinguished statesmen and the progress of economical legislation. Upon the fitness or unfitness of the subject as a part of the elementary school curriculum educationists appear to be divided. Taking a broad and unbiassed view, one cannot overlook the fact that the child may become the active citizen, the voter, the man of influence, it may be the member of his country's parliament; and that he may efficiently fill even one of these positions, it is important that he be conversant in some degree with the nation's history, and that he apply his mind to the consideration of the leading influences which have in the past combined to mould the empire of which he may yet become an active constituent. But whether or not the study should be begun in the schoolroom is another matter. If it is, it should be the teacher's aim to make it as attractive as possible, and in its influence highly educative, moral, and intellectual. He has a very small mind indeed whose aim is to cram into his pupils' memories as much as he can about pedigrees, parliaments, and wars, with all their blood-curdling incidents and dates; for such is the stuff that the school history is made of. These facts hastily accepted produce but a superficial and transient effect, and leave no stimulating or wholesome impression upon the mind. As guide and instructor, it will be your duty, in placing historical narrative before your pupils, to impress upon them, in addition to a knowledge of the facts, the bearing of one event or step upon another, its political influence, and the subtle current underlying the apparently superficial one, as well as the source whence the current flows. They have to be trained to think, and that, too, deeply, to remember, to draw logical inferences from what is read, and from the aggregate actions of individuals to estimate character, and derive such moral and intellectual benefit from the contemplation as will exercise a beneficial influence upon their own actions and characters. Growth of intellect should be concomitant with knowledge of facts and the desire to know. When the pupils have mastered the early history of the country in particular, and of external influences in general, that amount of interest should have been excited which will induce and enable them to pursue with profit the more immediate history of their own time. They should enter into active life conscious that they are citizens of a powerful nation, whose greatness has been created and is maintained by the efforts and industry of its people. Fortified and encouraged by the record of the past, they should strive to emulate the high ideal of the great minds to which they may have been introduced in the course of their historical investigations.

The Teacher's Function.

There is no denying that as a teacher of history you have a powerful weapon put into your hand. By the way you use it the pupils' ideas will be moulded and fostered. What you say and inculcate, because of its pointedness, will outweigh other influences. Your dictum and opinion will be the essence of truth and rectitude. Therefore, in placing historical facts and inferences before minds that are susceptible of the faintest impression and plastic to a degree, consider well the responsibility of your function, and the influence, moral and intellectual, which your teaching is likely to exercise upon the pupils in their years of maturity.

Of all the branches of the school curriculum history bears most unique characteristics. This, however, renders its study not less important. In geography, grammar, arithmetic, spelling, etc., there is a definiteness and tangibility the grasp of which is satisfying to the student. History, on the other hand, supplies but a limited number of facts, set in the subjective disquisitions of the historian, which are ever open to discussion and criticism. It is the limited number of facts and data that give so much scope for speculation and inference. But the intellectual culture derived from the exercise is very great indeed.

History a special Subject.

History is of such a nature that it may be handled to meet almost every phase of intellectual capacity. From the amplitude of historical lore, it is possible to make selections which every child may profitably study. From very young children much reasoning is not to be expected. Their mental faculties are chiefly exercised in accepting and remembering the facts narrated in the simplest language. The growth of reasoning and debating power is gradual; knowledge accumulates by an unconscious instinctive exercise of both in the earliest stages of life. The historical field is at once picturesque and darksome, attractive and dry. At one end it appears limited, at the other it is unlimited. It is of such a nature that the study may be commenced almost anywhere. Matter may be culled and commented upon which, while befitting the status and capacity of the class, may profitably sustain attention and effectively excite interest. Very young children should be instructed orally. The value of the teaching will depend upon the subject matter, as well as upon the light in which you represent it. For the tender intellect you have the description of all the offices which pertain to the body politic, in which the child lives and plays. You can profitably interest him in your description of the factors that give regularity and stability to the nation. The function of the policeman, the magistrate, the tax-gatherer, the sailor, and the soldier may be profitably explained, and can be made quite as interesting as the description of royalty

Nature of the historical Field.

itself. As the intellect becomes more robust, there might be introduced the study of the constitution and government of the national machine, and of the birth and growth of imperial power. Of special importance will be the story of the nation's struggles, internal and external, and the contemplation of brilliant biographies—historical monuments reared, it may be, on the field of carnage, on the arena of political warfare, or on the more peaceful hunting-ground of scientific investigation. As the prospect opens up and the field widens, a deeper and closer study of the national essentials and antecedents will absorb the mind. The biographical sketches with which the subject is judiciously interlarded will become more and more apt and instructive, and will tend to foster steady concentration of thought, in addition to stimulating healthy mental activity. When the pupils read for themselves, it will be your duty to direct them. The perusal of the fictitious anecdote, couched in highly moral lines and clothed in gilded cover, is surely of less educational value than the plainly-worded, substantial biography of such exemplary realities as James Watt and David Livingstone. The discipline in reading is the same. The one is fiction, the other fact. It is a mistake to imagine that the oldest biographies are the most instructive. The discoverer of yesterday may be studied with as great benefit as the Columbus of the fifteenth century. Both play their part in a nation's history, and both help to swell the aggregate of historical lore—the accumulation of centuries. Hence in the mass there is much that even to very young children can be made most instructive and highly interesting.

HISTORY OF THE JUNIOR CLASSES.

In the junior classes history might be of the nature of interesting narrative, and as has been already pointed out instruction might be imparted orally. It is by no means essential that books should be put into the pupils' hands at first. The only ones that would be of value at this stage would be those embracing matter of the nature above referred to, or collections of incidents of the anecdote type bearing upon the lives and pursuits of exemplary individuals. The matter would be readable and profitable, and, at the same time, totally different from what might be called an analysis of history. But the fact that the children read the narrative is no guarantee of their enjoying or deriving benefit from it. To make them like it, take interest in it, and remember it *you* have to expound it.

Study of a Reign or two.

Proceeding from such rudimentary, and in a sense fragmentary, elements which are characteristic of the youngest classes, you will reach a point when it may be necessary to take up in detail a reign or two, selected because they are attractive and appear as outstanding features in the course of the nation's development. Keep in mind that the pupils are yet young and quite incapable of grasping the great and subtle points upon which the history of the country hinges, and which the more mature and philosophic mind alone can intelligently comprehend.

The Teacher's Work.

When the children are very young, books, if used, will be more serviceable as readers than as a means of conveying historical information. Whether they read the facts or not, the story of the reign may be plainly told by the teacher. At the same time, it is impossible to do so unless he has thoroughly mastered it himself. The well-informed teacher is in a position to handle the subject so as to produce the very best results in the minimum of time, and with the least possible strain upon the pupils' intellects. The facts must be at once clear and pointed, and fall from the lips in natural sequence. Therefore be careful to digest well the reign or whatever it may be before you proceed to instruct others. Then cast the book aside, let the pupils do the same, and apply their intellects to what you say. Attention will be sustained by the interest and animation excited by your narration, while the impression will be in exact proportion to your descriptive power and the pupils' intelligence. Hence the more graphic and realistic your diction, the keener will be the interest in the study, and the longer will the facts be profitably retained in the mind. At this time a dilatory, laboured style and periodic reference to the book are productive of diffidence and listlessness in the pupils, and are subversive of wholesome progression. Alternate description and interrogation ought to be instrumental in quickening intellectual effort. *At every point the spirit of the narrative should be reflected in your eye.* The whole tendency of your teaching should be to make the task both light and agreeable, and to create in the pupils a desire to know something more than you have told them. They will thus be encouraged to read for themselves in order to acquire in a calm and calculating spirit fuller information regarding men and things in which they begin to find themselves really deeply interested. A healthy sense of inquisitiveness will have been aroused. Don't press the study upon them. That is dangerous, and is sure to be resented. Draw them kindly towards it, and endeavour to make the bait as palatable as possible. Keep in mind that matter in the shape of dates is hard to swallow; but like medicine, even in the case of young children, a modicum of them is sometimes useful. Have by you a blackboard upon which figures and genealogical data may be graphically displayed as occasion requires. After you have cautiously attracted the pupils to the subject, by convincing them of its utility and the fact that it is by no means disagreeable but really worth knowing, books may be placed in their hands from which they will be enabled to glean facts for themselves, and to acquire a knowledge of the past history of the country, to which your own well-directed expositions will be in the main supplementary.

HISTORY OF THE SENIOR CLASSES.

What it is.

Dr. Arnold has aptly defined history as "the biography of a commonwealth." This appears to be essentially correct. Biography embodies not mere acts and incidents only; it analyses the deeper and subtler political elements which underlie and influence historical results. The biographical compendium which the pupil will by-and-by be called upon to study is to most minds somewhat unattractive, however interesting the matter may be made in the hands of a skilful teacher. Looked at narrowly, an ordinary history is very much a collection of dry bones, a plethora of genealogies of sovereigns, pedigrees of peers, wars, plots, parliaments, bills, and, most unsavoury of all, dates, literally the burden of the tale. Served up as they are with every conceivable device for their abridgment and aridity, they do not appear particularly inviting to the youngster, who is perhaps hopeful that this new prescription may turn out to be something at once sensational and palatable. It is true the fascinating villain with the knife turns up at odd and uncertain intervals, at one time laying a delightful train of gunpowder, which, however (unfortunately to the child's way of thinking), did not go off; at another time compassing by some diabolical contrivance the death of a harmless and unsuspecting king, whom, despite his utmost exertions, he failed to annihilate. But these morsels, which to the juvenile mind are specially palatable, and impart to the narrative something of the *couleur de rose*, are but mere flashes in the pan. The appetite once whetted becomes suddenly blunted when all that was interesting is eclipsed by bewildering uninviting incidents, occurring at every corner of the kingdom at the same time—a parliament here, where there holds forth a statesman presumably illustrious, but in whom the youth cannot bring himself to take any lively interest; a battle there, whose date the historian has been careful to note prominently on the margin, but whose description the pupil casually reads and subsequently views in the light of passing mediocrity. Hopes once high are thus blasted, visions of bevies of assassins are nipped in the bud, and he finds himself called upon to settle down to read as he can, and as he must, a musty, disgusting "chronicle of small beer." This survey of the matter will show you how important it is that the books which you select should be as attractive as possible in every way.

History Books.

As histories are written in endless variety of phraseology and detail, the thing for you to consider is the selection of those which, although abounding in dry facts and generalities, you are justified in placing in your pupils' hands, and the assistance which they are supposed to afford in the acquirement of a wholesome fund of historical lore. In the junior books embellishments in the shape of pictures will add attractiveness to the matter, and will undoubtedly help to sustain interest in the narrative. In the senior ones, while the same features will not be objectionable, there will be less need of them. The pupils will then be credited with a deeper interest in the study, so that pictures will no longer be necessary to supplement or emphasize the context. Further, your own graphic teaching and the earnest, thoughtful attention of the class to the results of the combination of events should be stimulus sufficiently strong to encourage them in the pursuit of knowledge. It is a decided advantage that the names of the leading persons and events are printed in bolder type than the bulk of the narrative. Dates might appear in heavy figures on the margin adjoining the event, so as to catch the reader's eye and impress upon him the times of which he reads. There is a difference between a history and a historical reader. The former is a sort of epitome or analysis of history, and is meant to be a compendium whence the pupil, by painstaking and persistent application, may glean the maximum of knowledge in the minimum of time. The latter, on the other hand, is more readable. In it a mass of facts are stated, and both incidents and biographies appear *in extenso*. The narrative is occasionally interlarded with anecdotes, and sweetened by the insertion of verses *apropos* of the incident, the individual, the place, or the time. Such a book affords much instructive and agreeable reading, but from its style and vocabulary, necessitated by the nature of the subject, the pupils are apt to get surfeited with it. Be careful in prescribing lessons. When the doses succeed one another *ad nauseam*, the study becomes fruitless, and the result is a mere perfunctory discipline in reading. Some progress may be made in covering ground, and possibly in the art of reading; but the actual import of the narrative will be overlooked, so much will the idea of its being merely a reading exercise begin to grow upon the mind. Still these books are exceedingly useful and interesting, especially so to the younger children. Older ones are capable of tackling more intellectual, historical narrative, more particularly when their efforts are superintended and supplemented by a thoughtful and sympathetic teacher, who is fully alive to the nature of his work in its truest and noblest aspect. But no matter what the status of the pupils may be, it is ever injudicious to plague them by asking them to read at home, and frequently in most uncongenial atmospheres, page upon page to gather information which it is your function to supply orally in the schoolroom. You have to supplement the facts stated in the text-book. It is at the same time reasonable to suppose that the older and more advanced pupils, whose thinking powers are better developed, may gradually be left to amass knowledge of men and incidents for themselves. Hence in their hands may be placed volumes of some size and length of detail, which they can study and digest at leisure, guided by your supplementary explanations, suggestions, and timeous supervision. As teacher you must be ever on the alert. Should you detect the subject becoming uninteresting, obscure, or disjointed, you must rush to the rescue. You cannot afford to allow the thread to break or become entangled. Exert yourself to animate the dry facts, and thereby sustain wholesome interest in the narrative till the dreariness is past and more congenial and agreeable fields are reached. The bald, ungilded statements and dates staring the child uncomfortably and repulsively on every page can only be made really palatable by the efforts and ingenuity of the teacher. With all the topics constituting the history it is essential that you as teacher should be perfectly familiar. The salient points of every reign must be at your fingers' ends when you essay to instruct others. It is again repeated that in this as in every other branch the degree of your success in teaching will in a great measure depend upon your own knowledge of the subject. You need not expect to make clear what you know imperfectly, as is evidenced by your gleaning the facts and suggestions from a book at the very time when you should be most independent of it. Weigh carefully beforehand to what extent your own aid is quite as essential as the pupil's effort. Summarized in a general way, your assistance may be said to

The Teacher's Function.

resolve itself into selecting suitable books, indicating the portions to be studied and the parts demanding special attention in each reign, graphically describing and opportunely supplementing the facts of the manual, and methodically arranging and grouping in a get-at-able way the most instructive and salient points of the narrative, so as to make the whole as easily understood and remembered as possible. The pupils will then enjoy and derive benefit from the study of history, which by the observance of these points you may be said to have been teaching.

Method of Study.

A variety of ways in which history may be studied might be noted, but perhaps only one has been found really suited to children. In dealing with a period embracing several reigns, you might study all the wars by themselves, then all the biographies in the same portion, and finally conclude by singling out the bills, acts, and parliamentary proceedings, with their dates, to be committed to memory by the class. This method has its undoubted advantages; but it is not well adapted to young children, who should possess a conjunct knowledge of all the facts recorded. In the text-book the topics occur blended together in chronological order, and it will perhaps be best to deal with them as they present themselves. Though different in character, they are frequently essential in sequence. At the outset keep in mind that all the details of a reign are not of equal importance. Some will demand more time and deeper study than others, while it will happen that certain topics will be assimilated at the first reading. It is of the utmost importance that the pupils should first get a clear and firm grasp of the outstanding features, the broad outlines, so to speak, of the reign. Round these, as headings, minor events and biographical sketches may be grouped, as the result of more prolonged study and higher intellectual activity. This method of grasping the facts of a reign assists the memory. Children that have good memories naturally experience least trouble in remembering details. Those, on the other hand, whose memories are sluggish or unreliable, being conscious of their weakness, are apt to dislike the study;

nor is their aversion to it lessened by the success of others. It is your duty to endeavour to dispel every symptom of distaste. Subsequently the grouping of incidents and the summarizing of biographical details should be made a special study.

The Length of the Lesson.

That discipline which takes the form of prescribing a stereotyped page of matter to be studied at home, and upon which questions will be put on the following day, is anything but conducive to intelligent progress. The task becomes essentially perfunctory, and savours too much of a reading exercise and too little of historical training. Again, it frequently happens that when a portion of a reign is prescribed for a day's lesson, unless it be very interesting, the impression it makes is so ephemeral that by the time the whole reign has been overtaken and the final details exhausted, antecedent events have probably been forgotten, and the direct and essential thread of the narrative is but vaguely remembered. That a reign may be thoroughly relished and well grasped, it should be reviewed as a whole and then analysed in detail. After the pupils know the gist of the narrative, they will make progress in the study of it taken piecemeal. But a reign taken up in a series of detached portions does not present sufficient opportunity of bringing forcibly home the great points of morality and social economy which hinge upon a concise realization of all the facts of the reign. Once the narrative has been reviewed, the pupils will be able to follow and retain the successive portions which may subsequently be studied. Although historical investigation affords ample scope for teaching morality—and moral as well as economical ground has to be carefully traversed when necessary and convenient—bear in mind that the thread of the exposition must never be broken or interrupted by a protracted dissertation on high-flown ethics. The preliminary survey of the lesson or whole reign is especially valuable to the younger children. It has a stimulating effect, and lays a broad solid foundation to support and connect the motley group of details which will accumulate as the period is studied in portions. Afterwards, when they take books in hand, prescribe a part sufficient for a lesson, and *let it, if possible,* cover an integral and concise period of the reign. A *special reason for its* recommendation will be its completeness. Some portions are much more interesting than others. While the length of the lesson will depend upon various things, the constitution of the matter will demand special consideration. One child will find pleasure in studying and remembering what another contemplates with abhorrence. Again, some points require more explanation and enlargement than others. It therefore follows that, although the facts in the book are comparatively terse and few, because of the effort which the pupils will have to put forth to assimilate the subsidiary information in a definite space of time, the lesson prescribed must necessarily be brief in the manual. The number of dates will also affect its length, because these take time to commit to memory. As a rule, the more advanced the class the longer will be the task prescribed.

The Teaching.

Each pupil should be asked to read a convenient sentence or paragraph. When the history manual is used in the sense of a reading book, the lesson has to be carefully studied in its words and phraseology, apart from the story of the reign, which it nevertheless embodies. A good elocutionary effort is, however, frequently incompatible with the vocabulary and style of the narrative. In the ordinary reading lesson, that the pupils might acquire facility in reading words arranged in sentences as expressively as those ordinarily spoken, the explanation of the narrative was first evolved under the guidance of the teacher. The reading by the pupils followed. If history is to be read for reading's sake, the same method has to be observed, and the grasp of the incidents will not be the less feeble on this account. On the other hand, if the piece is merely read that the narrative may be known, much may be left in the hands of the pupils themselves. Reading begets intelligence, which, in return, fosters good elocution. Viewing the matter in its purely historical aspect, take the topics *seriatim*, and explain everything fully, clearly, and without bias or hesitancy. Sustain attention, and impress facts and dates by the use of both board and map. Take care to have by you a map which embraces the ground referred to in the lesson. Suspend it in full view of the class. Constant reference will have to be made to it, in order that the sequence of localized events may be clearly and intelligently understood. Let the pupils also make free use of slates, and even exercise books in the senior classes, to make copies of what you write on the board. When you have done as much as you intend in the way of aiding in the preparation of the lesson, let them carry away and digest at leisure, either at home or in the school, what you have expounded and sought to impress by mnemonics and vivid description. Next day they should come up fortified and ready to undergo the examination on yesterday's prescription, to which you will subject them before proceeding to deal with a fresh portion of the reign. Generally you will find that the following order of study will be applicable to most history lessons:—1. General survey of facts by the teacher. 2. Reading of the lesson by the pupils under the guidance of the teacher. 3. Closer attention to the narrative, and exposition in fuller detail. 4. Private reading and preparation by the pupils. 5. Examination on the part prescribed on the following day, and next day's lesson partially prepared. If home preparation be impracticable, a certain portion of school time will have to be devoted to this work. A reign that has been studied in a succession of parts should be revised in two or three succinct lessons if it be a long one, and finally it may be recapitulated as a whole. A revisal of the whole reign should invariably follow the study of its parts. Events have often such an important bearing upon subsequent ones that a clear knowledge of antecedent facts is conducive to an intelligent comprehension of the succeeding narrative.

THE TOPICS OF HISTORY REVIEWED.

Terminology.

What may be called the terminology of history should be explained as soon as possible, and at least before names, the import of which is unknown to the pupils, are freely used. House of Lords, House of Commons, Cabinet, Privy Councillor, Premier, Speaker, Bill, Act, Treaty, etc., all require to be expounded. Unless you do this, the pupils will be apt to form vague and even erroneous notions of the purport of such terms. A thorough knowledge of them will be of special encouragement and profit, without which reliable and steady progress is all but impossible.

A glance may now be taken of the leading topics under which history so designated is grouped. First to be noted are

Genealogies. the genealogies of sovereigns. It is important that these should be committed to memory, because they supply "pigeon-holes," as it were, into which may be fitted the facts relating to each reign. It is therefore desirable that the names of the sovereigns in any period should be committed to memory in succession, with the opening and closing dates of each reign. Write on the board the names of the successive rulers, and put after each the date at which the reign closed—nothing more except in the case of the first name—after which will appear the date of the beginning and of the end of the sovereign's power. If the child knows the names of the successive rulers, one date will be sufficient to remember, because the death of the preceding sovereign indicates the year in which his successor took office. More than this is superfluous, and only increases the burden and irksomeness of learning the dates by heart. As you write them, to be afterwards copied and remembered, call attention to the different lengths of the reigns, and to peculiar arrangements of figures. These points facilitate the task of making them the property of the mind.

In connection with a campaign the salient points to be handled are—(1) the cause of the war; (2) the belligerents; (3)

Wars. the leading soldiers; (4) the battles; (5) the result of the war; and (6) the treaty, if any. These headings might be written along the left-hand side of the board, and the facts of each day's lesson noted as they are referred to in the spaces allotted for details. The frequency with which the pupils look upon the guiding-marks will soon make them unconsciously familiar with them, so that it will not be necessary to inflict upon them the labour of committing them to memory. *A campaign cannot be profitably studied without the aid of the* *map.* At this time it is of paramount importance. Without it the reiteration of incidents and names of battles and places may be temporarily grasped. The impression is, however, at best but feeble and evanescent, and will soon entirely vanish from the mind. The study of the narrative alongside of the map gives the pupil a speedy, intelligent, and easily-remembered knowledge of the war, and effectively justifies the interference of other nations interested in the issue of the conflict because their own interests are perilously involved. The character of the hero is reflected in his actions; hence no opportunity should be omitted of graphically summarizing the outstanding points in the career of the leader, to whom has been intrusted the task of maintaining the honour and dignity of his country.

Localize each battle on the map, then write the name on the board, and after it put the date, if it is an important one. This will help to impress the detailed description of the fight. It is essential that the pupils should have a compact notion of the whole war rather than a disjointed and fragmentary smattering of a few sanguinary incidents. After the battles have been noted, underline the leading ones which may have been instrumental in determining the issue of the campaign. What you put on the board may be copied by the pupils, and by referring to this epitome they will be at once reminded of the subsidiary details attaching to each topic. It will be of great service when they prepare the lesson, since it will be a sort of natural guide, strengthening and quickening the intellectual faculties, lightening the burden while not altogether removing it, giving less need for arid stuffing, and allowing more time for wholesome and stimulating reflection.

The Treaty.

The term "treaty" will have to be carefully explained. It will be interesting to point out in connection with it that its polemical association is but an extension of the original idea. To most children there is little attractive about the constituent elements of a treaty; there is often much that is repulsive. Dire associations can only be prevented from germinating by your making the treaty at the close of the war as interesting as possible in point of its articles, and necessary as concluding the campaign. After you have justified it in every way, it should no longer be looked upon as a mysterious name, generally occurring at the end of a list of battles, its forbidding and enigmatical character being intensified through the irksome association of a date.

Conspiracies.

The plots and conspiracies of individuals have not been sufficiently successful or numerous to be historically important. Still they occur betimes, marvellous in concoction and audacious in intent. Boys read them with avidity and relish, and with that gusto which attaches to the exploits of "Jack the Giant Killer," or the atrocities of "Blue Beard." Be careful to dilate upon the cause which leads up to the plot and the results. The plot *per se* is one thing, the issues which depended upon it are quite another thing. Well-taught pupils at once associate the plot with its antecedent and subsequent facts, thus making it a link indispensable to preserve intact the varying thread of the country's biography.

Parliamentary Matters and Biography.

Parliamentary proceedings are inextricably interwoven with the constitutional history of the country. From these the biography of the statesman derives its setting and garnishing, hence biography and politics frequently go hand in hand. Children will take more interest in the interpretation and study of parliamentary procedure, which is often uninviting enough, if you graphically set before them the chief events and topics of the parliament, than if you simply leave them to digest the matter for themselves from a musty chronicle. Give a vivid and succinct account of the various incidents and enactments, and make a brief note of each on the board. In this way the pupils will be assisted and encouraged to study the subject in an intelligent and kindly spirit. With the parliament is associated the statesman. The ideas of its members are the essence of its influence, and ideas are the essential constituents of the individual. In the course of a reign or two the biography of a statesman is transmitted in the most fragmentary manner. In the ordinary school history, the pupils merely get detached glimpses of his rise and progress, so that at the end of a reign they find themselves on reflection possessed of but a smattering of his life and actions, nor do they succeed in getting that detailed and compact acquaintance with his career which will enable them to derive lasting benefit from the study. While the life of a good man is healthy reading, the biography of a really bad one is likewise very instructive. Notoriety studied in its twofold aspect enables one to grasp and appreciate what is good and virtuous in the one, and to estimate and condemn with greater force what is reprehensible in the other. The case is analogous to the placing of a very inferior work of art alongside of a masterpiece of the most artistic hand, to emphasize by sharpness of contrast the good qualities of the one and the bad features of the other. You will find it necessary to retrace your steps and make a short synthetical sketch of the person's life, in order that by some such succinct and connected account the class may be the better able to appreciate industry and exemplary conduct, or to denounce inconsistency and unscrupulousness, as the case may be. Older pupils might be set to write brief biographies on slates or paper. Headings written on the board are most essential. They enable them in an especial degree leisurely to realize to what extent the exertions of the individual have been conducive to his own elevation in the narrower sense, and to the progress and destiny of the nation in the wider. Keep in mind that they will undoubtedly attach the greatest importance to your appraisement of the individual. Be prudent in your criticism, for what sentiment you express the class will assuredly echo. You cannot analyse the policy of an individual without alighting upon the political influences which prompted it. Only with advanced, intelligent, independent-thinking pupils can you venture to expatiate upon the principles which determine a distinguished administrative career. As a rule aim at simply analysing the influences which resulted in an individual's particular line of action; and without commenting opinionatively at any great length upon the validity or morality of his dealings, trace them steadily and consecutively to their consummation either in honourable distinction or irretrievable disaster.

The enactments of the legislature form very important elements, and are to be referred to in the order of their passing. But in addition to the biographies of the sovereign and the statesman, those of philanthropists, discoverers, inventors, philosophers, authors, and artists ought not to be overlooked. Pointed reference should be made to them at the end either of a reign or a period. They are worthy of notice, because the struggle of a life may have been the means of guiding directly or indirectly into a specific groove the tone of the country. The history of the individual is one thing, the lesson which his life teaches is quite another. Upon the pupil the study of a life's work should tend to produce a certain determinative effect.

Dates.

Dates are a staring eyesore to the child—a burden difficult to grasp, and irksome to carry for any length of time. They ought to be made a special study. When carefully systematized the task is not so difficult. All the dates in history are not equally important. Familiarity with the incident or the individual will materially aid the child in his strenuous effort to remember the date; hence the importance of enlarging upon *the fact first*, and affixing *the date afterwards.* If the child knows when the sovereign began and ceased to reign, a certain nucleus will have been formed with which other dates may be associated, and events located after a moment's reflection. Dates can be taught as well as remembered. The processes of addition and subtraction in fixing them upon the mind should enter largely into your teaching. To those who maintain that dates can only be learned, the idea of teaching them will probably sound paradoxical. Nevertheless they can be taught. Peculiarities in the figures should not be lost sight of. Double figures such as 11, 22, 44, etc., form excellent pivots round which others may be grouped either by adding or subtracting. In dealing with the war in Ireland in the reign of William III., instead of bidding the pupils remember that the siege of Londonderry was in 1689, the battle of the Boyne in 1690, and the Treaty of Limerick in 1691, note down at once that the battle of the Boyne occurred in 1690; then point out that the siege of Londonderry happened in the preceding year, and the Treaty of Limerick in the following one. Seize upon the salient and central date first, and, by a little pointed explanation, the others will be readily and permanently remembered. While you write the figures let the pupils closely observe them. Strange to say, the reconstruction of two badly-formed figures, the challenging of a pupil to come forward and write the date after the event, or even the trifling incident of the snapping of the chalk at a certain figure while you are using it, will tend to impress the date upon the mind. The mysterious operations and wonderful flexibility of the memory adapt it to every scheme of the teacher. He who studies it longest is ever ready to proclaim loudest that it is susceptible of the deepest and most lasting impression when the observation is keenest. Your training should be designed to effect that the mere mention of an event will make the pupils at once conscious of others contemporary with it, although no interrogative reference may be pointedly made to them. What may be called the key dates might be underlined on the books, while the ones you put on the board should be copied by the class. The above will show you that to some extent careful explanations and the exercise of a modicum of ingenuity are conducive to a rapid and intelligent knowledge of dates, one of the heaviest items to remember in connection with history.

MNEMONICS.

Memoria technica, mnemonics, etc., have been time after time advocated as aids to the memory grappling with incidents and dates. Within reasonable limits they cannot be condemned; but these systems, even in history, may be carried a deal too far. The effort to recall the mnemonical data may supersede that to remember the facts themselves, and in such a case the device is both unprofitable and hurtful. Various useful applications of mnemonics might be cited. Certain letters occurring in a name may be suggestive of it. The initial letters of the battles occurring in a war, taken in succession, may form a word which remembered will form a key to the names of the whole group of battles. Again, a certain word occurring in an article of a treaty may be remembered as suggesting the substance of it. Thus the difficulty of remembering things may in a measure be agreeably and permanently overcome. The pupils are not victimized in any way. The method is legitimate which aids the memory and increases its retentiveness. It is simply marvellous what a modicum of ingenuity and a blackboard will effect in an incredibly short time with an interested and attentive class. Not less striking is the keenness manifested by the pupils when they sympathetically follow you, groping for something tangible which will assist them to remember the facts. Their efforts to assist you in the search for a key you should certainly encourage and commend. There is nothing objectionable in the employment of mnemonics, so long as they benefit the memory, and thereby render more intellectual and abiding the facts which are intended to become the property of the mind.

EXAMINING ON HISTORY.

Examining on history requires a good deal of tact to do it rapidly, and much skill and forethought to do it efficiently. That expedition and thoroughness may go hand in hand it is very essential that you should know the lesson so thoroughly that an appeal to a book for guidance and information will be unnecessary. The teacher's function is in a measure abused when he has to gather his facts and supplementary matter from a book, to lecture incoherently while pretending to teach, and to appeal persistently to the manual to suggest questions when he is examining. In such a case both steps are alike worthless, depressing, and irksome to the pupils.

There may be said to be two distinct methods of testing results and the pupils' preparation of the task. One is the mere oral questioning of the class individually; the other supplements this by a slate exercise, which is specially applicable to an examination on dates or an epitomized statement of the narrative. Under "Intelligence," reference has already been made to the nature of oral questions which are worthless and should be avoided. Again be it repeated that specially objectionable are those for which "yes" or "no" may be considered a sufficient answer. The utterance of either of these monosyllables, however accurate responsively, gives no evidence whatever that the pupil knows the subject, the risk of error is so small and the possibility of accuracy so great. When you put questions upon a whole reign, when the period is under review, seize upon the salient and characteristic points first, and keep questioning till you are assured that the broad facts are thoroughly understood as a matter of primary importance. Be cautious not to waste precious time in drivelling upon such insignificant minutiæ and unimportant details as uninteresting pedigrees, peculiar traits in an individual's character, the abnormal size and appearance of his nose, the cut of his hair, the colour of his eyes, or the gaunt expression of his cheek. These weigh very little indeed when flung into the balance against the great outstanding topics, a knowledge of which makes the narrative enjoyable and the study itself beneficial. After traversing the reign in its main features first, and being satisfied that the pupils know them, make use of these as headings, round which you may then proceed to gather less important but nevertheless useful details. In this, as in every other branch, it is absolutely essential that no whispering or simultaneous shouting of answers should be tolerated. The faintest whisper is indicative of misleading results. The pupils should be selected indiscriminately to give answers to oral questions. When slates are used, set the pupils standing face to face. Name an event, and let them write the date or reign; or supply a date, and bid them state the incident. To put occasionally a dozen or so of such questions will prove a useful test of their knowledge and preparation of the task. Again, they may be asked to write a brief account of any incident of the reign. This will also be useful as an exercise in composition. In itself the examination is simple enough, and, indeed, to the pupils it is not the least enjoyable part of the work after the matter has been well digested and appreciated. In the most advanced class the pupils' progress in the study assumes its highest and most intellectual aspect when they are asked to write short critical essays upon the character of an individual as reflected in his political career, or to discuss logically the *pros* and *cons* of some struggle in which the nation may have been involved. It will sometimes be difficult to revise these exercises without expressing opinions upon their inherent ideas, but, while errors in grammar and composition must never be overlooked, it will perhaps be best to commend every effort which gives proof of thoughtful and well-connected reasoning, even although the pupil's sentiments may not altogether coincide with your own. Again, while the character of an individual may be stated epigrammatically in response to an oral interrogatory, the pupils should be trained to discuss it at some length when they proceed to do so on slates or paper. Character is estimated not so much by comparison with that of the appraiser as by the conscientious application of a recognized code and standard of morality. In conclusion, be it noted that both in teaching and in examining you will do well to keep ever before you the important fact that your words are by no means falling on barren places where they will bear no fruit, and that the ideas and sentiments which you express should aim at leading up to useful, practical results, which will gradually manifest themselves when the tenderest images of the Creator, confided to your disciplinary care by trustful parents, and steadily blossoming into conscious manhood, look back with love and confidence upon the circumscribed schoolroom, whence they have gone forth fortified and encouraged by your instruction to wrestle with the realities of life in the vast arena of independent existence and independent thought.

THE END.

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